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Photograph by MALAK.

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The Soo Versus The Suez

by ALBERT G. BALLERT

NEARLY EVERY SCHOOLBOY learned at some stage in his training — perhaps it was in elementary school geography or in college economics or both — that the Soo (or Sault Ste. Marie) Canals on the Great Lakes water-way surpass all others in tonnage by a wide margin. To place it in proper perspective, the Soo

tonnage commonly has been compared to the combined traffic of the Suez, Panama, and Kiel Canals.

Now the premier position of the Soo has been taken by the Suez Canal. Ironically, this situation first occurred in 1954 the (American Soo Canal's hundredth year of operation)

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Above:—An aerial view westward, showing the American canal and locks at Sault Ste. Marie, Michigan. The channels in the St. Marys River are to be deepened to twenty-seven feet to complement the St. Lawrence Seaway development.

The Evening News, Sault Ste. Marie

THE SOO VERSUS THE SUEZ

— the year after the Soo set its all-time tonnage record. Last year, while the centennial celebration of the canal was being held at Sault Ste. Marie, Michigan, the rival waterway on the other side of the globe repeated its victory. How these two canals and the third-place Panama Canal compare is indicated in Table I.

In outranking the Soo in 1954, the Suez did it in a grand manner, as evidenced by the comparative cargo traffics of 85.4 million net tons and 106.8 million net tons respectively. This situation appeared to be exceptional, however,

being in large measure due to the Soo's low ore traffic. With the Suez Canal leading again in 1955 — a year of high economic activity, it became questionable whether the Soo could regain, even for an occasional year, the place it once held.

What is the reason for this change in first and second positions among the canals of the world? Primarily it was the result of the traffic in two commodities — iron ore through the Soo and crude oil through the Suez. On these two raw products largely rests the fortune and future of the two water-ways. In 1955 iron ore

TABLE I
TRAFFIC OF THE SOO, SUEZ, AND PANAMA CANALS, 1953-55
(Net tons in 000's)

Canal	Year	Tons	Total Transits	Principal Direction		Secondary Direction	
				Tons	Transits	Tons	Transits
Soo	1953	128,510	26,122	(eastbound)		(westbound)	
	1954	85,418	17,405	116,720	13,049	11,790	13,073
	1955	114,555	22,525	75,218	8,621	10,200	8,784
Suez.	1953	99,647	12,731	(northbound)		(southbound)	
	1954	106,792	13,215	92,133	6,586	24,822	6,362
	1955	118,506	14,666	96,370	7,334	24,659	6,629
Panama	1953	47,888	8,850	(westbound)		(eastbound)	
	1954	45,098	8,256	25,933	4,537	21,955	4,313
	1955	50,035	8,397	(eastbound)		(westbound)	
				23,953	4,185	21,145	4,071
				26,947	4,152	23,088	4,245

Sources of information:

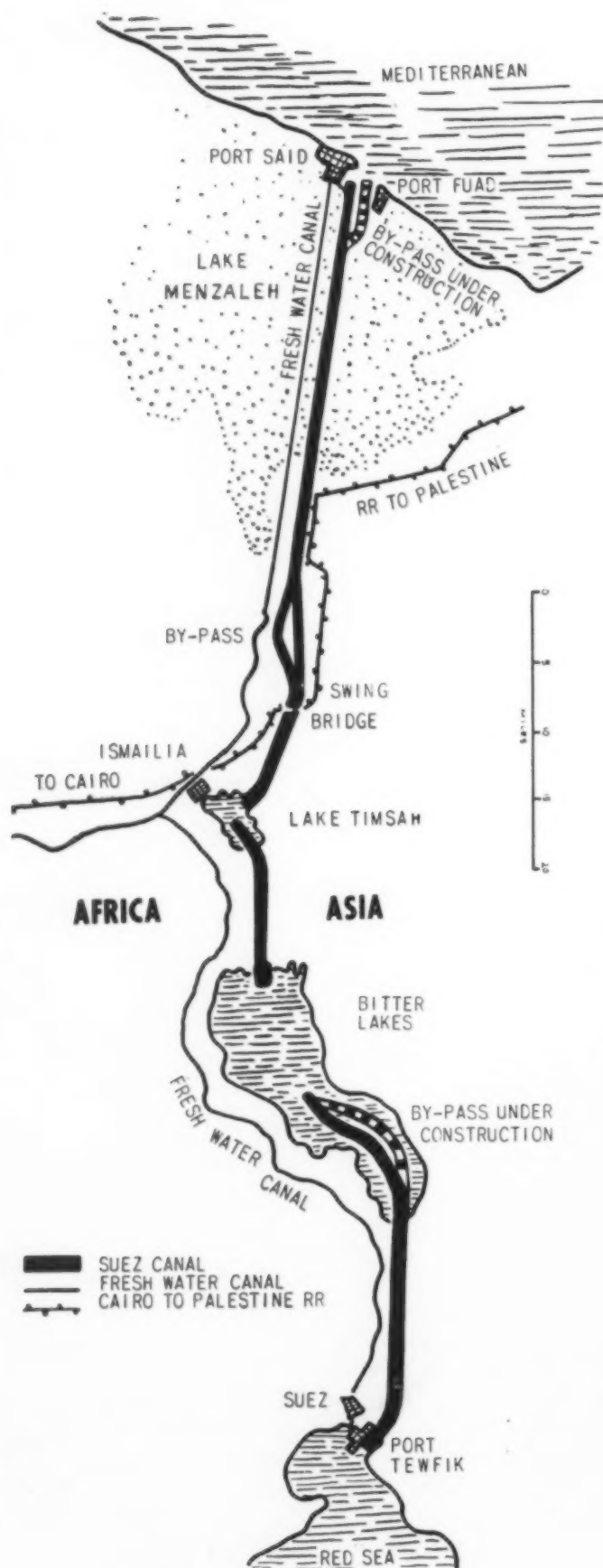
- Soo. . . . Corps of Engineers, U.S. Army, Office of the District Engineer, Detroit District.
- Suez . . . Compagnie Universelle du Canal Maritime de Suez, *Le Trafic du Canal de Suez, Année 1955*. (Original data in metric tons.)
- Panama. . Letters from Panama Canal Company, Balboa Heights, Canal Zone, 3 August 1954, 11 July 1955, and 12 April 1956. (Original data in long tons.)

Below the locks at Sault Ste. Marie, Ontario. Grain is the dominant commodity in the commerce of the Canadian Soo. Most of the vessel passengers — 178,000 in 1955 — pass through these locks.

N.F.B.



Map of the Suez Canal



Compagnie Universelle du Canal Maritime de Suez

represented 78 per cent of the Soo's tonnage, and crude petroleum accounted for 58 per cent of the volume through the Suez.

During the decade since the Second World War (1946-55), the commerce of the Suez has been one of continual increase (see Table II). So marked was this gain that the volume at the end of the period was nearly five times that at the outset. By contrast, the volume through the Soo followed an erratic pattern. This is portrayed by the 1953 and 1954 statistics. The 128.5 million net tons of traffic in the earlier year surpassed by a considerable margin that of any year during the Second World War. However, in 1954 the volume was the lowest of any year since 1939. Through the last decade it has been the increasingly prominent positions of oil and iron ore in the commerce of the two canals that have resulted in the trends indicated in Table II. Since the futures of the canals are so closely related to these commodities, it is desirable to view them more closely.

The Suez and Oil

The rapid rise of the Suez commerce has been a by-product of the spectacular post-war development of Middle East oil fields. In 1946 production from the Persian Gulf area was 256,369,000 barrels or 9.3 per cent of the world total. By 1955 production had increased 4.5 times to 1,171,393,000 barrels.¹ This represented about 21 per cent of the global total. And discoveries have continued, until now about two-thirds of the earth's known oil resources are located here.

Leader among the political units contributing the crude oil moving through the Suez is Kuwait. From this sheikdom about the size of the State of New Jersey at the head of the Persian Gulf came 69 per cent of the 1955 crude petroleum, nearly 47 million net tons. Until 1946 there was not a single producing well here. Following, but far below, were Saudi Arabia and Iran with 7.4 and 5.5 million tons respectively.

Pipelines have had a significant role in reducing the potential commerce of the Suez. Saudi Arabia, for example, produced about 350 million barrels of oil in 1955, compared to the 400 million barrels of Kuwait. In the Suez

¹ *World Oil*, 15 February, 1956, pp. 186.

THE SOO VERSUS THE SUEZ

TABLE II
COMMERCE OF THE SOO AND SUEZ CANALS
RELATIVE IMPORTANCE OF THE LEADING COMMODITIES, 1946-55
(In 000's of net tons)

Year	SOO			SUEZ		
	Total Traffic	Iron Ore	% of Total	Total Traffic	Crude Petroleum	% of Total
1946	91,587	61,977	67.7	24,169	2,254	9.3
1947	110,732	80,789	73.0	33,717	5,580	16.5
1948	115,414	85,256	73.9	54,419	16,595	30.5
1949	95,832	71,664	74.8	67,301	26,661	39.6
1950	106,140	80,242	75.6	80,037	38,627	48.3
1951	119,864	90,275	75.3	84,605	39,661	46.9
1952	106,276	75,727	71.3	91,985	48,458	52.7
1953	128,510	98,580	76.7	99,647	52,177	52.4
1954	85,418	62,583	73.3	106,792	59,960	56.1
1955	114,555	89,397	78.0	118,506	68,318	57.6

Sources of information:

Soo Corps of Engineers, U.S. Army, Detroit District, *Statistical Report of Lake Commerce Passing Through Canals at Sault Ste. Marie, Michigan and Ontario*, for seasons 1946 to 1955.
Suez Records obtained from Mr. C. Boillot, office of U.S. representative, Suez Canal Company, New York, N.Y.

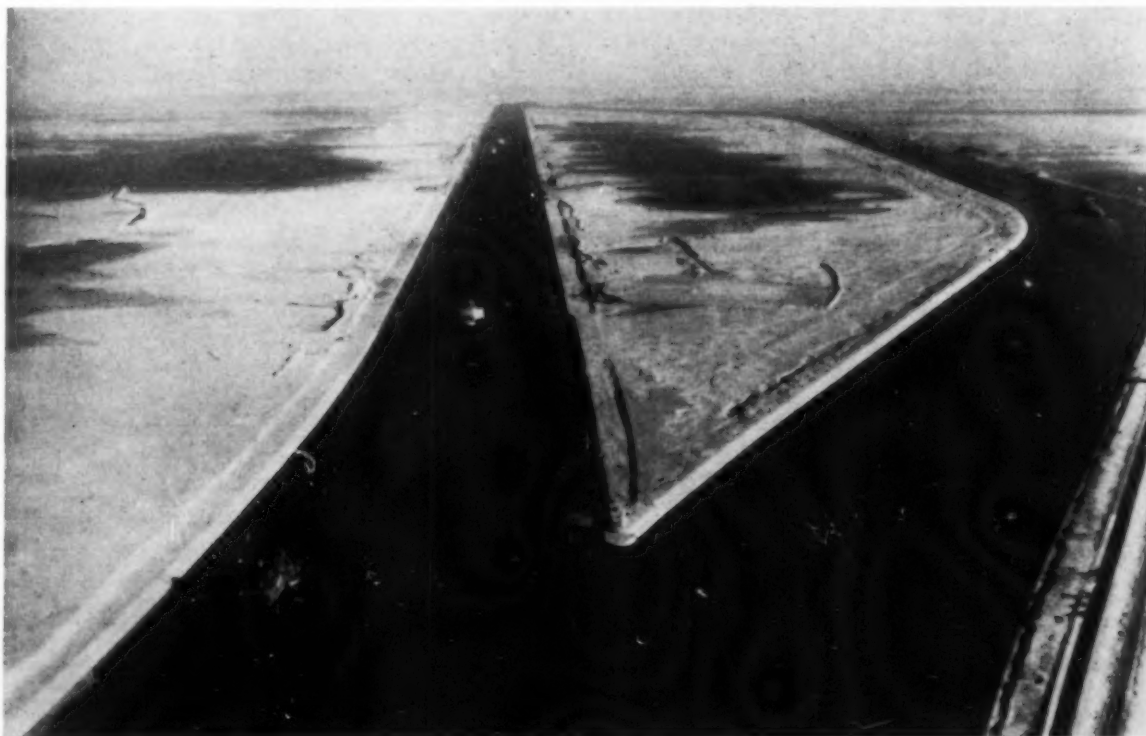
traffic, however, only about 11 per cent of the crude petroleum originated in the former country. The explanation is the Arabian-American Oil Company's pipeline to Sidon, Lebanon, on the Mediterranean. This 1,000-mile pipeline carried a daily average of 322,000

barrels in 1955. It supplied 898 tankers with cargoes totalling over 24,000,000 net tons last year, and this diversion from the Suez route saved the vessels a two-way trip around the Arabian Peninsula, a total distance of about 7,000 miles.² Another large Middle East oil

² Petroleum statistics based on data obtained from "Tapline: A Report on Five Years of Successful Operation," *The Petroleum Engineer*, April, 1956, pp. D36ff.

Southward aerial view of the Suez in the vicinity of El Ballah above Lake Timsah on the northern section of the canal. On the left is the by-pass completed in 1951. A second, the Kabret By-pass, is under construction at the narrows between Great Bitter Lake and Little Bitter Lake.

Compagnie Universelle du Canal Maritime de Suez.



producer, Iraq, also contributes in only a small way to the Suez commerce due to pipelines. This country's major oil fields, which are in the interior, have never offered a potential traffic to the Suez, since the pipelines all extend westward to the Mediterranean.

While crude oil has accounted for more than half the commerce of Ferdinand de Lessep's "ditch" since 1951 (see Table II), there are other significant products in this traffic. Petroleum in refined form ranks second. In 1955 it amounted to 7.3 million net tons with the major portion moving northward. Except for the years 1952-4, when the Iranian refineries were shut down, this has been the directional flow of most of this commodity group. In the years following the Second World War, the northward flow rose to over 15 million net tons a year. Whether this volume again will be reached depends largely on the production of the Abadan, Aden, and Bahrein refineries.

The destination of half the Middle East's raw and processed petroleum in 1955 was Great Britain (31 per cent) and France (18 per cent). It is, perhaps, surprising to find that the United States, is in third place in this traffic (all crude petroleum), accounting for about 13 per cent of the total raw and processed oil. The yearly increase in this volume reflects the United States' changing position from exporter to importer of petroleum.

Other commodities in the Suez traffic have varied in amount from year to year, but their relative importance has diminished with the expanding parade of oil tankers which totalled

7,878 vessels in 1955. In this group, the leaders in the northbound traffic are minerals and grains, and in the movement to the south and east the ranking products are metals, cement, and fertilizers. Although most of these commodity groups have gained in volume over the last decade, none at present accounts for as much as five per cent of the canal's commerce.

The Soo and Iron Ore

In the commerce of the Soo, iron ore has always been the dominant commodity. Normally it has accounted for about three-quarters of the total canal tonnage. Last year, when ore rose to 78 per cent of all traffic, it attained a dominance equalled only in the war year, 1942.

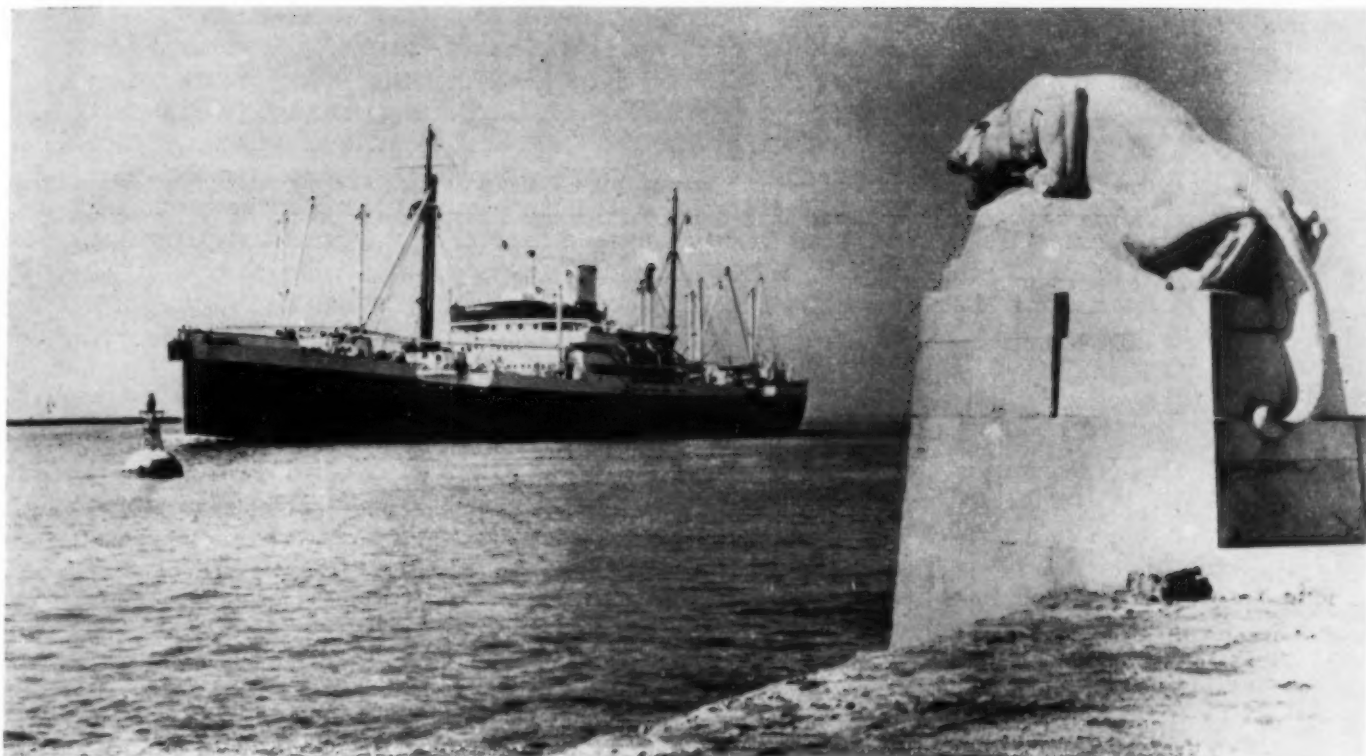
Association of the Soo's loss of claim to first position among ship canals with a decline in the ore resources of the Lake Superior region is natural. Such a decline has not taken place to date, however; though it may do so in the future. Instead, the major factors have been the lack of potential for further expansion, a condition necessary to compete with the revitalized Suez, and also the closer relationship of the Soo's traffic to changing economic conditions. Another is the diminishing supporting role played by the coal trade.

The volume of ore moving through the Soo is one of the best indicators of the health of the Canadian and American economies. As this goes, so goes the outlook for iron and steel production, since about three-quarters of the American ore output reaches the market by this route. How the ore trade vacillates and



The Canadian and United States canals and locks in Ontario and Michigan respectively.

A. G. Ballert



The average transittime for the Suez Canal is fifteen hours. From Port Said to Port Tewfik (more commonly known as Port Taufiq) the distance is 100.7 miles. The canal is lockless and a current flows from the Mediterranean to the Red Sea at the rate of about three and one-half knots.

United Press photo

affects the status of the Soo has been well illustrated in the last few shipping seasons.

In 1953 iron ore movement reached an all-time high of 98.6 million net tons which, in turn, brought the Soo to a new traffic peak of 128.5 million tons. Stimulating this record flow through the canals and water-way which connect Lake Superior and Lake Huron was the 1952 tie-up in ore shipments due to a steel strike and also the quick tempo of industrial activity in 1953. However, by the first half of 1954, American steel production was only 71.5 per cent of rated capacity, and this dropped to 64 per cent in the third quarter. Ore imports in the United States also began to show a marked increase. In 1954 this foreign ore reached 17.7 million net tons or nearly 50 per cent more than the previous year. As a result of these conditions, only 62.6 million tons of ore moved through the Soo in 1954, the lowest volume since the 1930s except for 1946. Business conditions showed a sharp rise in the fall of 1954, but many lake-carriers were already at their winter moorings. Throughout 1955, United States and Canadian steel production continued to advance. It rose in the United States from 88 per cent of capacity in the first quarter to 98 per cent in the last three

months. As might be expected, the flow of ore through the Soo was high, the fourth highest on record. This occurred despite another 50 per cent rise in American ore imports, which brought the volume to 26.3 million net tons. Though Canada figured high in this gain, the increase came largely from the Quebec-Labrador deposits, which did not utilize the Soo water-way. Between 1953 and 1955 Canada's ore exports to her southern neighbour rose from 2.1 to 11.3 million net tons.

In 1956 the commercial activity of the Soo appeared certain to be maintained at a high level. Supporting this optimistic view was a first half steel production for the United States of 98 per cent of capacity.³ Although shipping had a late start due to adverse weather and ice conditions, by the end of June the Soo commerce was 5.3 million tons above 1955 and ore accounted for 3.5 million tons of this increase. A steel strike throughout July, however, idled about 80 per cent of the American Great Lakes fleet and, at the end of the month, the Soo traffic for the year had dropped 4.4 million tons below the 1955 volume. Although the Great Lakes ore trade is now at a high tempo, it is doubtful if the Soo's volume for the year will exceed 80 million tons. To supplement the

³ According to the monthly report of the American Iron and Steel Institute (Form 102) July, 1956, the annual steel production capacity of American plants at the outset of 1956 was 128.4 million net tons.

shortage, it is likely that United States ore imports will be well over 30 million net tons for 1956.

In the future, it is highly doubtful that the ore movement through the Soo will ever reach the 1953 volume and, that the Soo's commerce will surpass the record set that year. The outlook for ore from the Lake Superior region is not, however, a gloomy one. Offsetting the decline of resources in some of the older mining areas is the increasing production of taconite plants utilizing low grade ores and the expansion of Canada's Steep Rock development.

Unlike the Suez, when two secondary commodities — grain and coal — are added to the Soo's prime traffic generator, we find about 95 per cent of the canal's annual tonnage is represented. Taken as a group, the eastbound grains have in recent years replaced westbound coal and coke as the second ranking commodity. This has come about by the grain trade holding fairly steady while the coal traffic declined. Tonnages for 1946 and 1955 illustrate this point.

	Grains	Coal and coke
1946	9,512,874	15,943,492
1955	10,186,284	9,399,299

The sharpest blow to the coal trade has been the mass conversion of railways from coal-burning engines to oil-burning diesels.⁴ While the expanding needs of electric utilities have provided a brighter future for coal, the area served by the Soo route holds prospects for only a modest growth in this respect.⁵

Grain looms prominently among commodities to benefit from the enlarged St. Lawrence water-way, but what gains may this bring in the Soo's traffic? The improved water-way will eliminate the need for transferring grain from one carrier to another at Lower Lakes ports and hence will lower transportation costs. Such reductions may bring about some expansion of the world market for Canadian and American grains, but in terms of tonnage the Soo commerce should not be significantly augmented.

As pipelines divert traffic from the Suez route, so do they affect the eastbound oil trade of the Soo Canal. A pipeline was completed from Duluth-Superior to Sarnia, Ontario in

early 1954. From 1951, when the Alberta pipeline reached the head of the Lakes, until the Sarnia extension opened, the crude oil moved eastward in tankers. In 1953 the volume was 3.4 million tons, but with the pipeline opened it dropped to one-fifth of this figure in 1954 and 1955.

The Outlook

What are the prospects for the Soo and Suez? Earlier in 1956 it appeared likely that 115 to 120 million tons would pass through the vital link in North America's Inland Seas route during the navigation season. Now, however a figure of not more than 110 million tons is probable. As for the Suez, the margin of victory over the Soo should be the greatest yet achieved. Based on a January-May 1956 increase of nearly 12 per cent over the same period in 1955, more than 135 million net tons may be expected to move between the Red and Mediterranean Seas this year.

In appraising the two water-ways, several of their contrasting features should be recognized in addition to the antipodal nature of the political climate surrounding them. Supporters of the Soo point to a navigation season which is limited to nine months — only three-quarters as long as that for the Suez.⁶ It is questionable, however, whether much additional tonnage would be carried in a longer season, since the Great Lakes fleet usually is able to meet the yearly demands placed upon it. Supporters of the Suez might even question the status of the Soo as a canal. The Suez, which opened in 1869, is a 100-mile lockless water-way dug to connect the Red and Mediterranean Seas. By contrast, the Soo is two short canals, the one in Canadian waters being a mile in length and the canal on the American side measuring 9,500 feet. Through the latter passes about 97 per cent of the Soo's total freight tonnage.⁷ These canals were built solely to contain the locks which permit shipping to skirt the 20-foot fall in the St. Marys River rapids. With respect to the depth of the Soo, it should be noted, however, that the sixty-odd miles of channel maintained in the St. Marys River is soon to be deepened to twenty-seven feet to match the St. Lawrence Seaway development.

⁴ In 1946 the United States' Class I railways used 110.2 million net tons of coal and, in 1955, the volume was only 15.5 million tons (U.S. Bureau of Mines, *Weekly Coal Report*, 16 March, 1956).

⁵ Albert G. Ballert, "The Great Lakes Coal Trade: Present and Future," *Economic Geography*, Vol. 29, 1953, pp. 48-59.

⁶ In 1956 the season will not be more than eight and one-half months.

⁷ The American canal has four parallel sets of locks which in 1955 facilitated 17,033 vessel passages. Through the Canadian canal passed 5,492 vessels and most of the 182,500 lake vessel passengers.

THE SOO VERSUS THE SUEZ

Whatever the contrasts may be in the two canals, both water-ways are vital to the economy of North America. Through the Soo Canal moves the major portion of a resource which is basic to Canadian-American industrial strength. The Suez, while remote from our shores, is of increasing importance in the domestic economy of the United States. In 1955 over 9.5 million net tons (47 to 48 million

barrels) of crude oil were imported into the States by this route, a gain of 134 per cent over the 1952 figure. This came about despite the continual expansion in United States oil production. Unavailability of the Suez Canal not only would intensify the drain on American petroleum resources for domestic requirements but undoubtedly would result in increased demands from western European countries.

* * *

Author's Note: This article was prepared before 15 September 1956 when Egypt assumed control of the Suez Canal; consequently, the estimate of 1956 commerce is probably too high. Prior to this date, the average convoy consisted of eight to ten vessels, and two convoys traversed the canal in each direction every day. It was not

unusual for daily transits to total fifty or more, although the average in 1955 was forty ships. In the first two weeks of operation after the foreign pilots left the daily average was thirty-seven vessels. The net tons of cargo carried through the Suez in the first five months of 1955 and 1956 were 49,780,000 and 55,613,000 respectively.

A queue of ships waiting to pass along the Suez Canal. At the time the photograph was taken daily transits totalled forty or more. Crude oil has accounted for more than half of the canal's commerce since 1951 and petroleum in refined form has ranked second. In 1955, 7,878 oil tankers traversed the canal. A high percentage of the crude petroleum originates in Kuwait at the head of the Persian Gulf.

United Press photo





Winding westward along the floor of the Bow River Valley, the Canadian Pacific Railway passes through the industrial and business sections of Calgary, en route to Vancouver. Lorne Burkell

Calgary—The Foothills City

by JOHN S. PEACH

Alberta Government photos except where credited.

IN SOUTH-WESTERN ALBERTA the table-land of the prairies begins to rise in a series of bush-covered hills, westward towards the mountains. At the threshold of the foothills country stands the city of Calgary.

No explorer ever recorded having been at the site of what now is Calgary. But in 1875, a detachment of Royal North West Mounted Police under the command of Colonel James Farquharson Macleod left the fort at Macleod in southern Alberta, to rendezvous at the Red Deer River, some 300 miles to the north, with the Commander of the Canadian Militia. At the Red Deer River, Colonel Macleod sent a troop from his detachment, under the command of Inspector Brisebois, to build Fort Calgary at a site previously chosen by the Colonel. Briefly and unofficially the fort was known as Fort Brisebois before its name, at Colonel Macleod's insistence, was changed to Fort Calgary.

The fort was located where two swift-flowing rivers, each in its own wide deep valley, joined in a bowl-like depression in the prairie-land. Indian legend has it that the bowl was once a lake, fed by the two rivers and by a small stream with the unlovely name of Nose Creek which dips down its own valley from the north. The largest of the streams, the Bow River, so named because the fir trees along its banks supplied the Indians with wood for their weapons, flows from glacier-fed lakes north and west of Calgary in the Rocky Mountains near Lake Louise. The Elbow River, which flows from the mountains to the south-west, is a shorter, smaller stream which supplies Calgary's homes and industries with crystal-clear water in great abundance. At the southern edge of the city the Elbow, once known as the Swift, is contained by a dam spanning the Elbow Valley and creating a large lake from which is drawn the city's water supply. West of the city the Bow River, through a series of dams, provides electric power for a vast area of southern Alberta.

Calgary today, at an age of not even four

score years and ten, ranks as one of Canada's principal cities. The river-spanned bowl of land holds the down-town business section and many miles of residential streets. But whereas not many years ago it was contained between the hills, Calgary now spills up and over the edges and across the prairie-land to the north, east, and south, and to the hilly country on the west.

Calgary grew slowly at first, but the arrival of the Canadian Pacific Railway in 1883 brought a trickle of settlers, then a flood-tide of adventurers and families seeking to add new chapters to their lives where there were frontiers to be won with elbow-room for all.

At the outset of the First World War, land sales were rocketing and grandiose schemes to transform the prairie-land on the eastern outskirts of the little city, as well as the more solidly settled parts of the community, were



The building of the Hudson's Bay Oil and Gas Company Limited adds its trim height to Calgary's growing skyline.

sold to investors thousands of miles from the foothills. A town-planner created on paper an ornate civic plan, which was banished by the outbreak of war to a closed file of uncompleted projects. Calgary, like all other cities and towns, was drained of manpower during the war years, and its come-back was slow.

Then, forty miles to the south-west, in a long shallow trench of land paralleling the first range of mountains, oil was found in the Turner Valley. Wet gas had poured from several speculative wells for some years. It was in the year 1914 that gas was first found in Turner Valley. But in 1925 oil was discovered and Calgary suddenly flared to life with the birth of an oil boom. It was short lived, and the city spent quiet years until an exciting oil strike in Turner Valley made 1929 a memorable year. It was boomtime again. Office buildings sprang up, houses were built, there was a "Texas" quality to conversations, and the city suddenly grew in population.

A grasshopper plague and a drought, which had depleted the sources of Calgary's income

from surrounding farming communities, were cast into shadow by anticipation of the new giant industry believed about to arise from the limestone far beneath the grassland of Turner Valley.

But Calgary was to become drowsy again, her dozing punctuated only by the Exhibition and Stampede, which for one summer week each year brought an increasing number of visitors from the four corners of the globe. (The Stampede, which grows in stature year by year, has been described by one astute visitor as a state of mind as well as an event.)

Then came the Second World War. Again the young men left Calgary; but this time young men of other countries swarmed in, to take their air force training in the skies of sunny Alberta before setting off to fly against the enemy. When the war was over, Calgary had finished lolling in the sun. In 1947 the discovery of oil at Leduc, 180 miles to the north of the city, catapulted Alberta into the news and sparked its cities into action. As the provincial capital, Edmonton, became the servicing

An oil refinery, symbol of Calgary's new era, shares the valley of the Bow River with its flour mills.





Calgary 1956 — as viewed from the air.

and supply centre for the nearby mushrooming oil fields, so Calgary swiftly assumed the role of business and financial centre. Unobtrusively, Calgary already had become an administrative centre for the grain industry of the western prairies, and for the coal industry, fed by a potential of 42,500 million recoverable tons lying beneath Alberta's acres. This new petroleum industry meant that the "boom-and-bust" days of the earlier part of the century were over. The city's centre chattered to the din of steel fabricators' riveters and thundered to the roar of cement trucks, cranes and all the bustle attendant upon the construction of new office buildings. The skyline of the business section underwent some remarkable changes, and out on the rims of the twin river-valleys residential suburbs crept out into the pasture and farmland in every direction.

Today, Calgary is still growing. Despite its

short history as a commercial metropolis, its population continues to climb at a steady pace and is now beyond the 200,000 mark.

In the open country to the north, east, and south, and in the foothills and mountains which form Calgary's backdrop, exploration for petroleum continues at a quickening pace. Natural gas as well as oil is being found, holding promise of a large petro-chemical industry for the city and district.

About four miles from the site of one of the old ranches, which as a corner-stone of Calgary's prosperity boasted thousands of head of beef cattle when the century was new, a sprawling plant produces nitrogen fertilizer which is shipped to hundreds of markets on the North American Continent. This plant is somewhat typical of the industry of Calgary: created as it has been by the needs of a traditional industry, in this case agriculture, and by the avail-



The towering grain elevators and flour mills of Calgary are reminders of the industry that has been and continues to be one of the mainstays of the west.

K. T. Hyde



Scene at Alberta Stockyards at Calgary. Sturdy beef cattle, fattened on the province's rolling ranges, being driven into the enclosure for transportation to markets.

C.P.R.

ability of the modern gas fuel. Into the plant, which consumes twice the quantity of water used by the entire city, are fed natural gas, air, electricity, and water; while out of the plant emerge trainloads of fertilizer.

A few miles south-west of Calgary, in an historic valley steeped in Indian legend, stands a small group of metal buildings. From beneath the grassy hills around it, natural gas surges into the machinery in the buildings. Within its walls the sulphur in the gas is extracted, to be stockpiled in brilliant yellow rock-like hillocks. The sulphur-free gas is piped beneath the fields and over the horizon to Calgary's homes, offices, and factories. The sulphur is loaded on railway cars for journeys of many hundreds of miles to play its part in the making of paper and smelted metals.

These and other Calgary industries, such as a brass foundry from which, since its fires are gas-fed, no smoke emerges, are of recent date. They have taken their place beside the long-established flour mills and packing plants which tower into the clear Alberta sky. No smoke-pall hangs over the city to blot out the sunshine, and a source of wonder to the newcomer is a still clear winter day, when into the sparkling bracing air there rise thousands of slim white vaporous fingers from the myriad chimneys of the city. Even the railways — the Canadian Pacific whose main line bisects the city east and west, the Canadian National branch-line which ends at Calgary, and the half-dozen branch-lines which fan out from the city — contribute little smoke to the air as their dieselization program nears completion.

In the centre of the city, a new traffic pattern is emerging as old pioneer homes are razed to make way for skyscraper office buildings. A one-way passage of vehicle traffic on the grid of streets is easing what might have become serious growing pains as the city expands beyond the most extravagant dreams of its first settlers. Recently two nationally-owned department stores have doubled the size of their buildings, installing at the same time five-storey parking facilities for their customers. In the suburbs shopping centres to serve new and old residential areas have been created, and public bus and trolley-bus transportation has

been extended with the swift growth of paved streets throughout the new districts of brightly painted homes.

Calgary is a family city in which a rapidly and constantly expanding program to provide school facilities plays an important part. The old two-storey and three-storey massive school buildings of native grey sandstone are giving way to trim glass-walled single-storey units, some of which are constructed of prefabricated panels designed and manufactured in Calgary.

A branch of the University of Alberta serves arts students in the Calgary area, and it is planned to conduct many more university courses on a new campus now in the blueprint stage. In addition, at Mount Royal College, university preparation courses as well as an annual winter calendar of specialized evening study classes are to be carried on.

One of Calgary's most interesting educational and cultural centres is The Coste House, once a stately private home, now a hive of arts activities. Courses in languages, painting, sculpture, and the like are in constant progress, and The Coste House is the temporary stopping place of many a travelling art exhibit, drawing large crowds of citizens to its elegant panelled rooms.

The popularity of The Coste House, or more correctly, the Calgary Allied Arts Council, has amply indicated the growing Calgary appetite for the lively arts. Recognition of this has come

Westhide Krishnagar, a pedigreed bull from Herefordshire, England, was purchased by a rancher near Calgary to improve his Hereford herd.

Lorne Stout





Youth meets youth through the wire mesh at the zoo in Calgary.



to the city in the form of a large auditorium, a gift to Calgary from the Alberta Government on the occasion of Alberta's golden jubilee celebrations in 1955. This fine structure high on a hill-top is carefully designed to cater to stage and concert presentations of all kinds, and plans are afoot to create nearby an outdoor hill-side amphitheatre for summer presentations amid parklike surroundings.

Parks and playgrounds dot the city, the most famous being Bowness Park and St. George's Island. Bowness, an area developed on an island in the Bow River west of the city, is a civic enterprise embracing picnic and sports grounds, a merry-go-round and other rides, a dance pavilion, swimming pool, and quiet winding water-ways for row-boats and canoes. St. George's Island on the Bow River houses the largest zoo in Canada. It is famous for the excellence and variety of its animals and birds and for its life-size replicas of prehistoric monsters which roamed the Calgary area millions of years ago. The latter, fashioned in intimate detail, lurk in the woods at the west end of the island, while close by is a museum of fossils discovered in southern Alberta representative of the dinosaur era on the North American continent.

Three public swimming pools, two of which were built by public-spirited service clubs, are located elsewhere in the city, and Calgary is justifiably proud of its very modern and comprehensive Y.M.C.A. and Y.W.C.A. facilities which include immaculate indoor pools.

Public and private golf courses, a horse-racing track, a stock-car racing track, polo grounds, cricket pitches, bowling greens, curling rinks, a huge indoor arena, and a football stadium are further examples of the facilities for enjoying athletic events and sports of all kinds. Eighty-five miles to the west are the ski slopes at Banff, and in the forested foothills as close as thirty-five miles from the city fishing and hunting are to be enjoyed at their best.

As recently as forty years ago much of the south-western part of the province was a

Here game fish are raised for the restocking of southern Alberta streams.

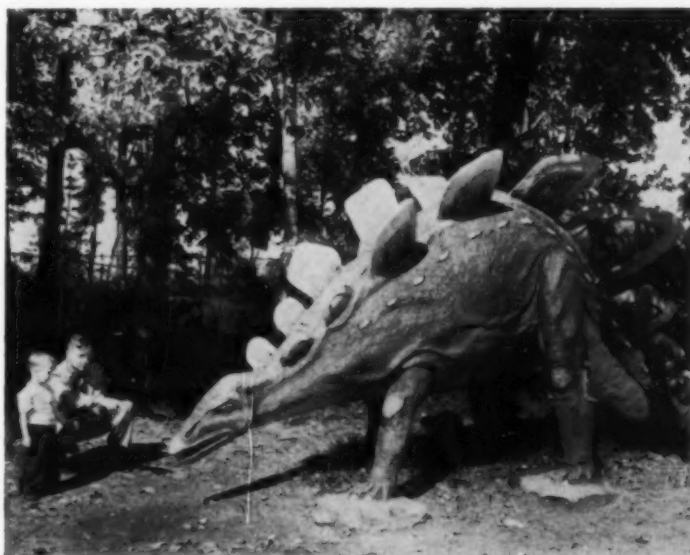


Tennis courts and swimming pool at the Glencoe Club, Calgary, which also has facilities for bowling, badminton and skating.

wilderness; the traditional latch-string was out on many a rancher's door south-west and north-west of Calgary. Travellers on foot and on horseback down the valleys immediately paralleling the eastern slope of the Rockies were welcomed without question day or night. The wayfarer had but to pull the string of the latch to open the unlocked ranch-house door, and find therein the hospitality for which the west is famous. The hospitality remains; but as civilization has tightened its grip on the foothill country, the traveller passes by on a hard-surfaced highway. Should he turn to the less-used roads and trails that thread through the coulees and around the hills, he can find the peaceful pace of the four seasons and tranquil-

lity amongst those whose ranches span the glacier-fed creeks and stretch across bush and forest where the sturdy beef cattle fatten for stock-show prizes and for the abattoirs of Alberta.

Prehistoric creatures that roamed the Calgary area sixty million years ago have been re-created realistically at St. George's Island Zoological Gardens.



From the fence wires there flutter the bright streamers of the oil exploration crews, adding to the already impressive annual output of 113,035,046 barrels of crude oil and 169 billion cubic feet of natural gas now being fed to North American markets.

Sarcee, Stoney, and Morley Indians, living within a few miles of Calgary, raise their crops, tend their livestock, and work in the woods. And when Calgary Stampede time comes, they flock in beaded finery to join the three-mile parade of the old and the new west, and for one gala week to set up their tepees under the cottonwood trees at the Exhibition Grounds.

Farm families still come to Calgary for much of their shopping, as they have done over the years. But today they come in response to bargains they hear advertised on one of Calgary's three radio stations, see on programs telecast from the city, or read about in the two lively daily newspapers. They drive to the city on broad black-topped highways, and they arrive in sleek new automobiles rather than in the

black high-seated democrat carts of yesterday. For the farming people the days of depression and grasshoppers and drought are dim memories, for the benefits of Calgary's prosperity reach them through expanding markets for their varied crops and their high quality livestock, which are constantly winning high awards in Canadian and North American livestock and grain exhibitions.

Many are the young farming people who have found employment in the city's expanding industries — its mills, construction industry, metal-working factories, furniture manufacturing, food processing plants, and the scores of industrial and commercial firms whose development has arisen from the establishment of some 250 petroleum exploration and development companies in Calgary.

The administrative and executive trend in Calgary's growth, originally based on agriculture and coal and more recently bolstered by petroleum, has wrought significant changes in her position in the Canadian scene. Today Calgary ranks tenth in size of population, and the city's banking transactions place her in fifth position behind Toronto, Montreal, Winnipeg, and Vancouver, by far outstripping many eastern business centres.

The voice of Calgary has changed too. To the thousands of settlers who came north across the forty-ninth parallel to Canada from the United States after the turn of the century have been added thousands more. In fact, southern Alberta is the home of the largest number of United States nationals to be found outside that country in any part of the world. These neighbours from the south have brought with them many of their national habits, as have the thousands of new arrivals from the British Isles and continental Europe. The settlement which once housed a handful of hardy cattlemen has now become a city which proudly listens to the excellence of its symphony orchestra and the polished performances of its amateur theatrical groups, which plays host to professional and business groups meet-



The Rocky Mountains sixty miles west of Calgary are a sportsman's paradise.



Above:—Elk wander through the quiet forests of Banff National Park.



Right:—In the sanctuary of the park, a fearless deer surveys the highway.

ing in the city in national convention at all seasons of the year, which boasts the most modern airport facilities in Canada with direct non-stop service to Toronto and Vancouver. McCall Field, named after the Calgary air ace of the First World War, Captain Fred McCall, D.S.O., M.C. and bar, D.F.C., also is the home base for more than ninety single and twin engined executive aircraft, privately owned and operated by petroleum and other industrial firms for the transport of their personnel and equipment throughout the continent.

The many national groups, linked by an intense pride in a city whose hospitality is renowned, have helped it to grow in stature and

Pheasants, imported experimentally into Alberta, thrive in the foothills country where grain and ranch land meet.





Calgary's Mewata Stadium on the south bank of the Bow River is easily reached by the new Mewata bridge. The area is a far cry now from the treeless prairie of little more than eighty years ago.

The spine-tingling chuck-wagon race at the annual Calgary Exhibition and Stampede is one of the most popular events.



The grounds where the Exhibition camped on an oval race course flanked by the grand and (Buildht).





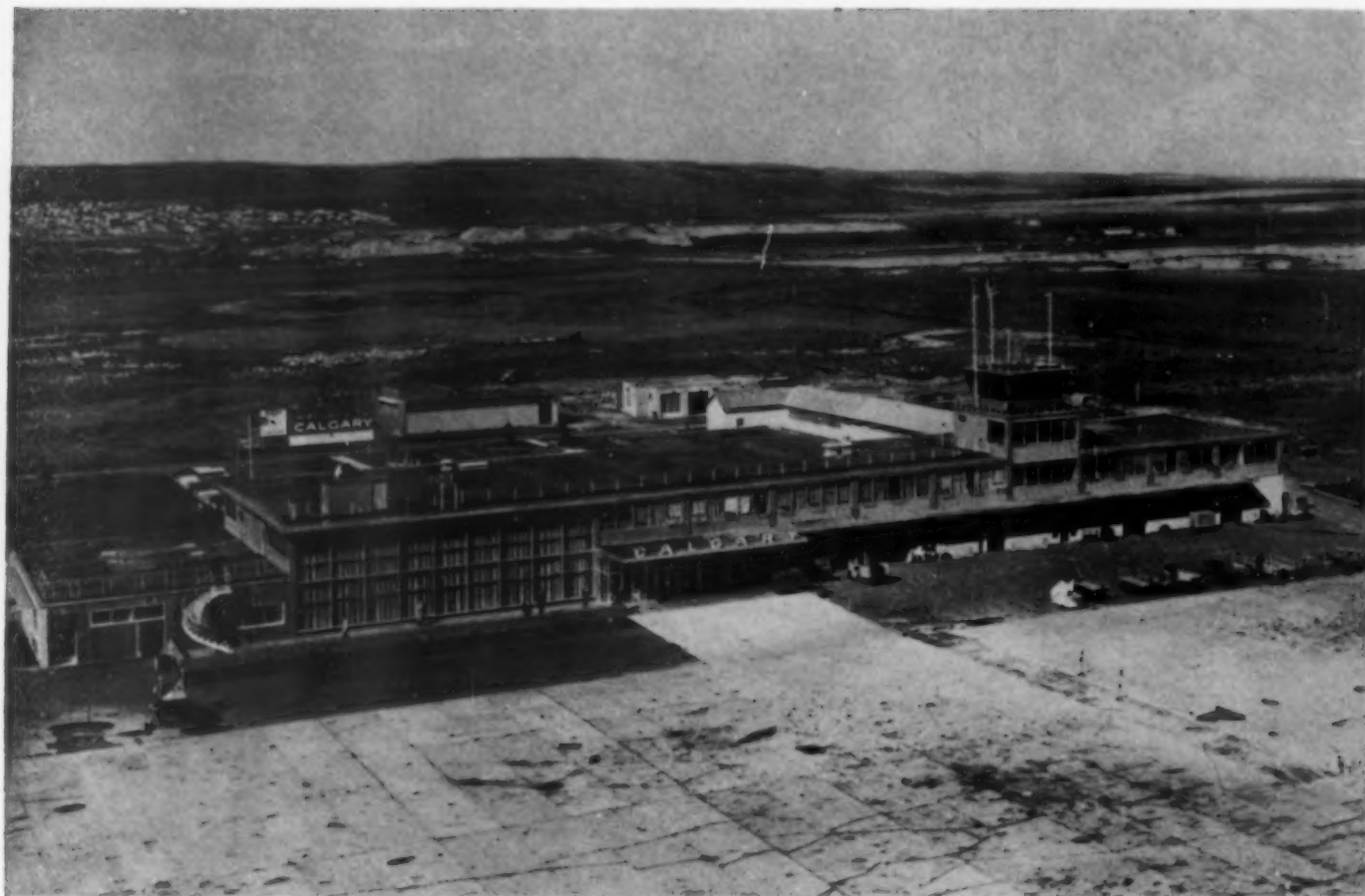
Much of the city lies in the lovely valley of the Bow River.

...ampede are held. In the centre is the
ground and bleachers (left) and Corral
(right).

K. T. Hyde

*Bareback riding of untamed horses tests the skill of Alberta
Indian cowhands at the annual Indian Days show in Banff.*





McCall Field, Calgary's excellent airport. There is direct non-stop service to Vancouver and Toronto. Besides the commercial aircraft, more than ninety privately owned small aircraft use the field.

demeanour to the point where to live in Calgary is to know a great measure of the pleasure of an active and interesting life.

Standing at an elevation of 3,450 feet above sea level (3,545 feet at the airport), Calgary enjoys one of the most bracing and varied climates in Canada. The warm, sunny, dry summers last from June to September. With the coming of the first frost, Indian summer arrives in a

blaze of glorious autumn colour. The days are balmy and the nights crisp and clear. The snowfall, which amounts to about 16.87 inches annually, generally is concentrated in the months of December to March when the average mean temperature is 19° Fahrenheit. During the winter an unpredictable wind, known by the Indian name of Chinook, sweeps swiftly from the mountains, westbound across the southern



Gardens and rockeries are brilliant with flowers in the residential suburbs of Calgary.



The Bow River, racing from the glaciers of the Rockies, is halted briefly by the latest power and flood-control barrier — the Bearsaw Dam, a few miles west of Calgary. It is named after an Indian chief.

portion of the province, sending wintertime temperatures soaring as much as fifty degrees in an hour and remaining so until the wind has died out within a matter of hours. Certainly there is no dreary monotony to the weather, and the summer days make Calgary and its surrounding countryside a joy for the sportsman and vacationer.

Any seasonal lack of constancy in the weather

certainly is not matched by Calgary's people. The city of the foothills is a friendly and energetic community, known abroad for its proximity to Banff and Lake Louise, its petroleum industry, its spectacular Exhibition and Stampede, and its broad-brimmed white "ten gallon" hats. It is known to its citizens as a good place to live, where the future has no limits.

A modern home nestles among the trees in a residential district of suburban Calgary.





*"Fortune may yet have a better success in reserve for you, and they who lose today may win tomorrow."
A woman of El Toboso in La Mancha carries her water-pitcher to the well.*

At A Certain Village in La Mancha*

by MARY WELLESLEY

Photographs by the author

MY VISITS to Madrid, Seville and Granada were most enjoyably spent "without meeting any adventure worth the trouble of relating". My Madrid friends thought I was "not mad but woundy venturesome" to go and live five weeks in El Toboso in La Mancha, the village of the "peerless Dulcinea" of Don Quixote. I arrived there in a *tartana*, a horse-drawn vehicle driven by the postman.

The country was flat and treeless, planted with vines, corn, chickpea, and cummins from which is made a purple dye. It is unendurably hot in summer, although "in January the water freezes in the pitcher". The whitewashed houses of earth or stone were built the same way as in

Cervantes' time. There was no running water and the people still used the wells dug by the Moors before they left the country in 1492. Twice a week the water-seller came round selling fresh drinking water from an outsize barrel drawn by a mule. As we drew near the village, I saw "that lofty gloomy structure", the church. The priest conducted me to the supposed ruins of Dulcinea's house, where thistles now grow in the kitchen, and told me that a former mayor had tried most energetically to restore the house and to collect a Cervantes library in various languages. "If he did not perform great things, yet no man was more ambitious of undertaking them."

*Quotations throughout the article are from *Don Quixote* by Cervantes. Everyman edition, 1926. The Motteux translation. Published by J. M. Dent and Sons (Canada) Limited, Toronto.



*On the outskirts of El Toboso a 500-year-old well dug by the Moors is still in use today.
Ropes drawing up pitchers of water have worn grooves in the lips of the old Moorish wells.*





Left:—"None can deny but I am a man every inch of me, wherever I am, and I will be a man at home in spite of anybody."

Below:—"The beauty of some ladies has its days and times, and is more or less according to accidents or passions, which naturally raise or diminish the lustre of it, and sometimes quite extinguish it."



AT A CERTAIN VILLAGE IN LA MANCHA

The busy vital life of the *posada* or inn, described by Cervantes, seemed to have finished and the inn was a cheerless place frequented only by travelling salesmen selling pigs or lace. I looked everywhere for the author's "young female adventurers".

"They don't exist in El Toboso", the schoolmistress told me. "The women wouldn't tolerate them."

"And the men?"

"Well", said the schoolmistress, "for two years they do their military service and then besides they sometimes go to Madrid on business. There are no theatres here or dancing to distract husbands, only a cinema on a Sunday twice a year."

The postman's brother had been courting a young lady for eight years and, as was the custom in El Toboso, they never went inside each other's houses. On Sunday afternoons they walked together, but not arm in arm, in the village and on its perimeter but not on the country roads. Propriety forbade that the walk continue after dusk; then the couple spoke to each other through the iron grille of a window in her house, the girl inside and the postman's brother outside. If it rained he was given an umbrella. After a few years of courting on these lines, the male members of her family would call on his family, and if they were received, the engagement would become more formal. He would then be able to visit her in her house, but only to sit in the drawing room with her parents, grandmother and two sisters, which would not be very conducive to romance. Saying good-night at the front door would be allowed, with the family remaining in the drawing room.

During the month of May the enthusiastic suitor throws buckets of bright blue colour wash at the house of his chosen girl as a token of May madness. "Such demonstrations of love are never altogether displeasing to women and the most disdainful, in spite of all their coyness, reserve a little complaisance in their hearts for their admirers." The attitude has not changed since Cervantes' day. In El Toboso they still say "Better my daughter ill married than well kept."

Weddings take place at 9.30 a.m. The bride

wears white or black, never colours. There is a sit-down breakfast, given by the bridegroom's family in their home if it is big enough, otherwise in the local café where the food varies in quantity and quality according to the means of the family and "one is invited or rather pleasantly forced to eat" more than one wants. A tray is put on the table in front of the bride and bridegroom, and guests put money on it as a wedding present. Weddings are usually in October after the *vendimia* when everyone is particularly well off. If there is a marriage in the spring or summer, people ask, "How can they afford it?" After the wedding breakfast there is dancing and then more feasting till one o'clock in the morning. For the first year of their married lives the poorer couples eat with whichever family is richer. This is to help them financially. If the husband is a farm worker and takes his luncheon with him (bread, cheese and sausage in a knapsack with wine in a miniature wooden barrel or a goatskin bottle), the bride will eat that meal with her family.

After marriage, domestic life is certainly nothing but domestic. The cooking is done over an open fireplace on the ground, and the fire is



Gigantones, towering papier maché figures on wooden frames, are carried through the village on the eve of its Patron Saint's day.



Devout women who could not join the procession because they had to tend invalids or old persons stepped out their doors and knelt in the street until the procession passed.

made from the sticks of the previous year's vines so that the iron frying-pan and saucepan each need three legs to balance them among the sticks. Luncheon is taken at two o'clock in the afternoon and dinner at ten o'clock at night. Any baking has to be carried to the village baker's oven, but this cannot be done if the women who have prepared the dough happen to be in mourning for a relative. Sweeping is done with a bunch of coarse grass about two feet long. Washing takes place in the back yard with water in several "great jars of the sort commonly made at El Toboso". This yard, usually about twenty feet square, is often shared by a horse, pig, chickens and rabbits. In the house where I stayed there was no back gate to the yard, so every morning at eight o'clock the horse was brought through the house over rugs specially laid so he would not slip, then was harnessed to a cart in which the postman drove off to collect the mail.

As the postman's sister was in mourning for her father who had died the year before, she could not attend the church processions which took place every week. Her only diversion con-

sisted of going to church. Three years' mourning was observed by women for a near relative and one year's by men.

On Sunday afternoons the children of El Toboso played in the public gardens, where a few flowers struggled to bloom and there was no grass, and the young people walked round and round, the boys in one direction and the girls in the other so that they could see each other's faces every time they met. Married people sat outside their houses or walked about the village. They left the public gardens, which were called the *Glorieta*, to the young. In the winter everybody sat indoors around a table which had a long heavy tablecloth to keep in the heat of the *brasero*, a brass bowl filled with hot ashes from the fire and set in the base of the table. There was a wire cage over the ashes to prevent the tablecloth from catching fire.

The girls and young women wore modern dresses (home-made without the benefit of paper patterns) and cardigans in extremely vivid hues, sandals, nylons, and permanent waves when they were not in mourning. The older women dressed entirely in black, with

AT A CERTAIN VILLAGE IN LA MANCHA

gathered skirts sometimes to the ankles, woolen shawls, and kerchiefs tied round their heads and knotted under the chin. Their hair was scraped back behind their ears and fastened in a bun. None of the women of any age wore a trace of make-up.

As in Cervantes' time, a man slept in the stables with the mules in order to give them their fodder half-way through the night. Spaniards are very thoughtful about their animals' welfare and they cannot bear the idea of a mule getting indigestion through eating all of its hay for the night at once.

I was in El Toboso for their Patron Saint's day. The festivities began on Saturday evening with the band and the *gigantones*, large painted *papier maché* figures on a wooden framework dressed as a man or woman, about twenty feet high and carried on the shoulders of two men, marching round the village accompanied by the children. Later in the evening there were fireworks. Next morning at six-thirty the band was walking round the village to herald the Sunday procession of the Black Christ.

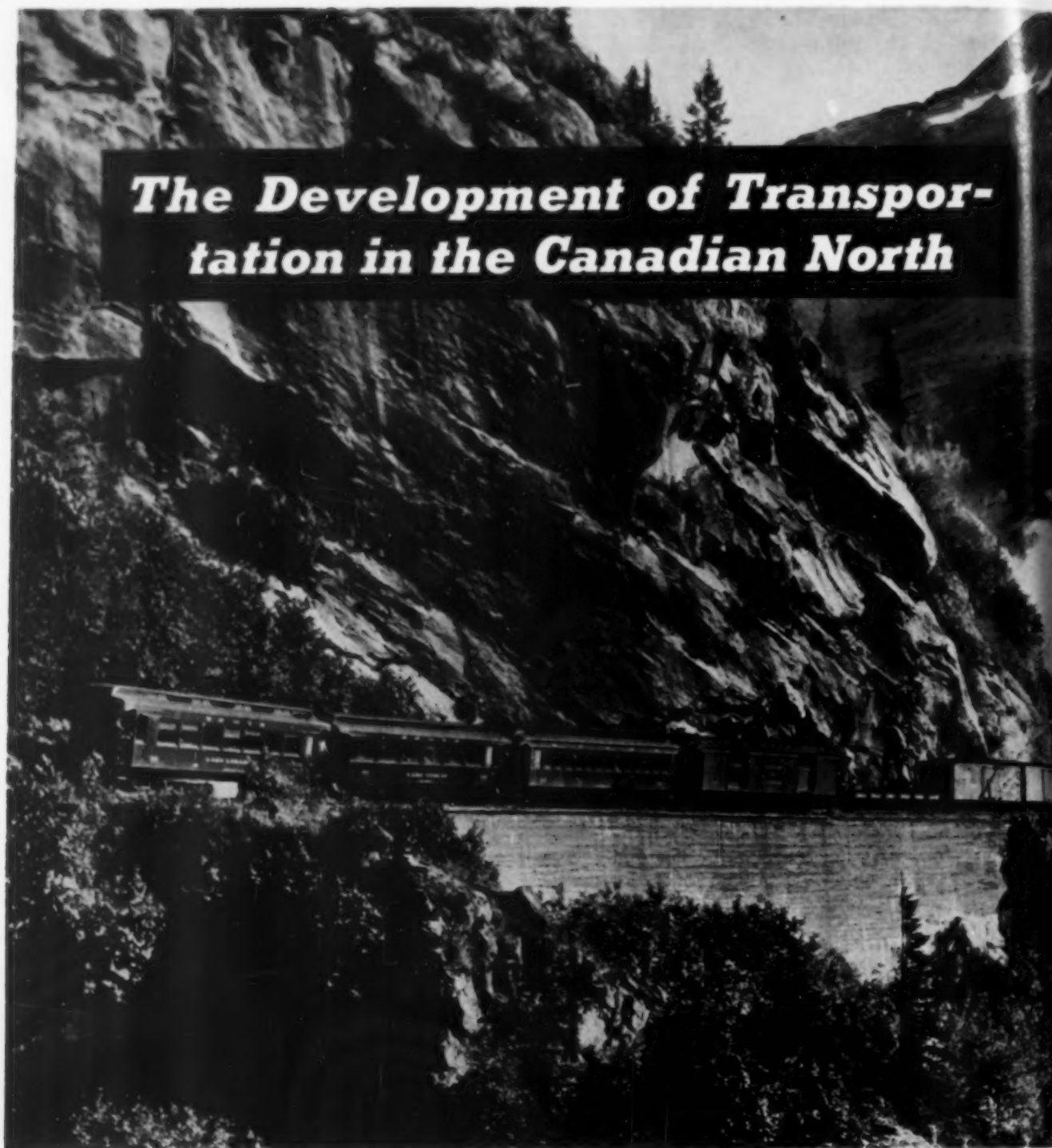
There is a legend that during some early war a precious image of Christ was protected by being buried in a heap of coal. When it was dug up, the village people refused to have it cleaned, so it remained the Black Christ. The figure, richly dressed in purple and gold with a crown of golden thorns, is borne under an embroidered canopy from the Chapel of Santo Cristo de la Humilidad on the Sunday morning of the three-day festival to the village church with great pomp and solemnity. It remains there all day. In the evening the thank-offerings of rabbits, cakes and corn which have been collected are auctioned to pay the expenses of the parade. After midnight, early Monday morning, the procession starts back to the Chapel by candlelight with music, flag-waving and general celebrations, followed by more fireworks. The Black Christ then remains in the shrine for another year.

Such is the life of El Toboso today, only one hundred miles from Madrid, "the greatness and impossibility of which makes this Adventure pass for Apocryphal."

The Black Christ, Patron Saint of El Toboso, richly dressed in purple and gold embroidered garments and wearing a crown of golden thorns, was carried to the village church for the day.



The Development of Transportation in the Canadian North



by C. H. HERBERT

Department of Northern Affairs and National Resources photographs except where credited.

IT is a commonplace that one of the main problems in developing a frontier region is transportation. It is worth remembering, however, that this problem has two aspects. One is purely a matter of distance. Almost all frontier regions are a long way from the centres

of economic activity. Edmonton, for example, which is only the jumping-off place for the Northwest Territories, is some 2,000 miles from the markets and manufacturing centres of eastern Canada and the United States. Yellowknife, which is on the southern fringe of

The White Pass and Yukon train successfully rounds a sharp curve in the Tummel Hills.



White Pass and Yukon Route

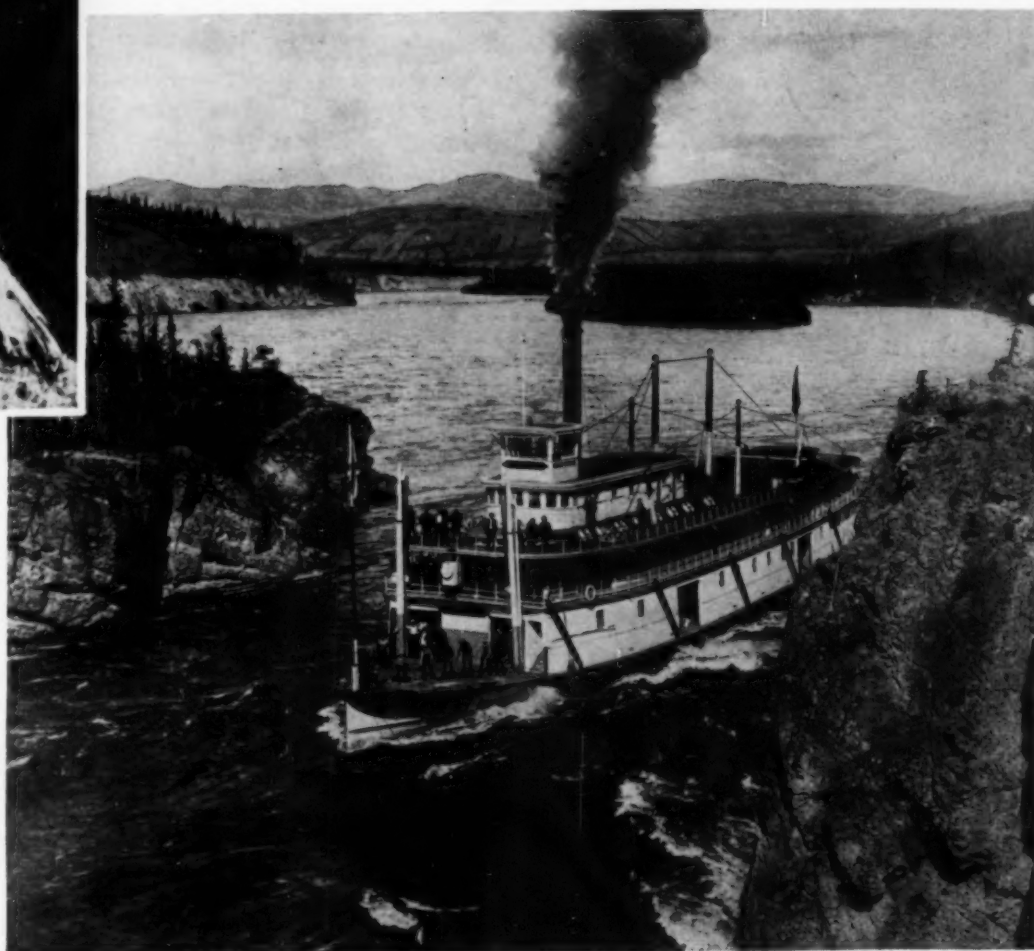
This historic photograph shows the steamer Whitehorse winding her way through Five Finger Rapids, Yukon Territory, by means of a cable. This river service has now given way to highway transportation.

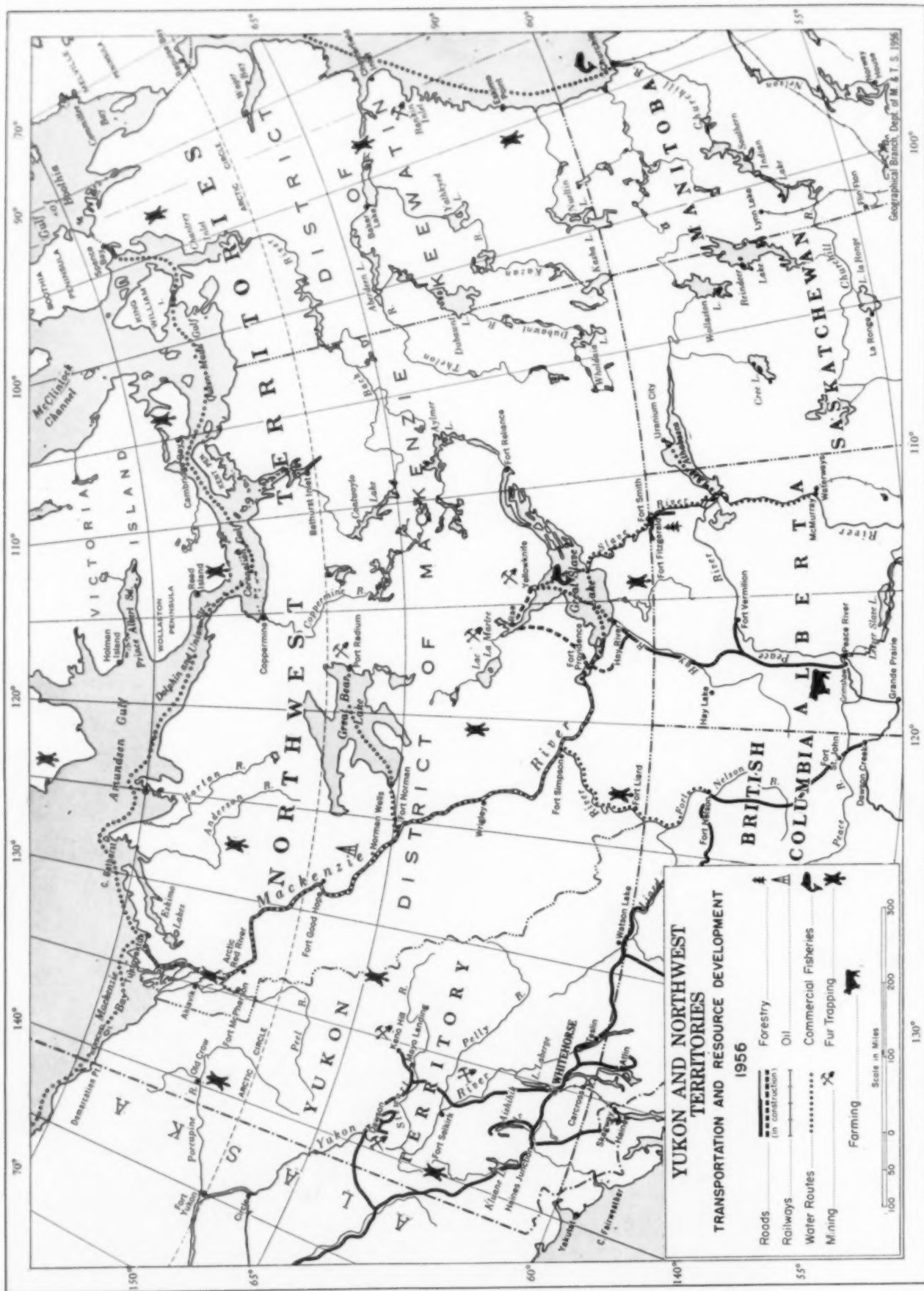
the Territories, is over 800 miles farther away.

The other aspect of the transportation problem derives from the sparse population and long distances between settlements which exist in any pioneer area. Traffic density is very low and any form of transportation is bound to be expensive. This tends to discourage the provision of adequate services.

The distinction between the high cost of transportation, created on the one hand by distance and on the other hand by lack of adequate facilities, is an important one when considering the claims of remote areas for government assistance in overcoming their transportation problems. Many economists argue that distance from markets and sources of supply is one of the basic economic factors in determining the economic desirability of any specific geographic area. Therefore, any attempt to offset the costs of distance by subsidy can be considered uneconomic.

When, however, one considers the high transportation costs which derive from the lack of adequate facilities in a remote area, the case for assistance is much stronger. Particularly is this so in a country like Canada where





almost all of the main transportation systems in the more settled areas of the country have been constructed in substantial part by governmental funds. Government help in the provision of transportation facilities in frontier regions is therefore only aiming to mitigate the economic disability which these regions suffer in comparison with other parts of the country where adequate transportation facilities exist.

The traditional form of transportation in the Canadian north, as in any pioneer region, has been the water routes. However, the long and cold winters which put these routes out of commission for two-thirds or three-quarters of the year have tended to cause the inadequacy of this form of transportation to offset its cheapness.

The first part of the Canadian north to experience intensive economic activity was the Yukon, following the gold rush of 1898. Here the Yukon River became the main thoroughfare, and a narrow gauge railroad was completed in 1900 to connect it with tide-water at Skagway. The only roads then in the Territory were of a local nature. Economic activity in the Yukon diminished after the gold rush ended, and no new transportation facilities were built until the Alaska highway and certain other roads were constructed in 1942 as war-time measures. About the same time the airfields of the Northwest Staging Route were built. After the war the silver-lead-zinc mining industry around Keno Hill found the steamer services on the Yukon and Stewart Rivers inadequate to handle its year-round and expanding production. To provide an adequate route, the federal government built a road from Whitehorse to Mayo. This was subsequently extended to serve Dawson. As a result of this highway construction the service on the Yukon River has ceased.

Scheduled air services connect Whitehorse, Mayo and Dawson with Edmonton and Vancouver. Whitehorse is also on a commercial air route between Fairbanks, Juneau and Seattle. Chartered aircraft are available in the Yukon but their usefulness is limited by the lack of lakes in the Cordilleran region to serve as landing grounds.

When we turn to the Northwest Territories,

and particularly the Mackenzie District, we find that there are three contrasts with the situation in the Yukon. The first is that there is no railway entering the Territories. The second is that the water route remains the principal thoroughfare. It is the Mackenzie River system, including Great Slave and Great Bear Lakes. Its upper reaches, however, are now being taxed to capacity, but fortunately the growing traffic volume has brought lower rates.

The route starts at Waterways, Alberta, where a railhead was established in 1926. The navigation season is limited to three or four months, depending upon the latitude of the points to be served. The route contains two main physical obstacles. The first is the shallow water and shifting channels of the delta of the Athabasca River as it enters Lake Athabasca. Particularly in low-water years, such as 1955, this represents a serious hindrance to navigation. The second obstacle is a series of rapids covering sixteen miles between Fort Fitzgerald, Alberta, and Fort Smith, Northwest Territories, around which all goods have to be carried by truck.

The only road into the Northwest Territories is the Mackenzie highway. This was completed in 1949 and runs from Grimshaw, in the Peace River District of Alberta, to Hay River on the south shore of Great Slave Lake. The construction of this highway has had only a limited influence on transportation costs into the Territories, but has played a vital part in stimulating an important commercial fishing industry on Great Slave Lake. During the past season a winter road from the Mackenzie highway to Yellowknife was operated as a toll road by a private concern.

The Mackenzie District benefited, like the Yukon, from war-time construction of airports. There are regular scheduled air services from Edmonton to Fort Smith, Yellowknife, Hay River, and down the Mackenzie to Aklavik. There is also a well-developed system of charter air services. This leads to the third point of contrast between transportation in the Northwest Territories and that in the Yukon. A far greater use can be made in the Northwest Territories of light aircraft to open up the



A ship in desolate Slidre Fjorde off Eureka on the west coast of Ellesmere Island.

Barges with their vital cargoes of oil are towed by a tug on Great Slave Lake.

Imperial Oil Review



country for prospectors and mineral exploration parties, because the vast number of lakes on the Canadian Shield provide almost unlimited landing grounds for aeroplanes with floats in summer and skis in winter.

In the District of Keewatin and the District of Franklin (the Arctic archipelago) no surface transportation routes exist. All freight movements are by charter air services, by tractor train in winter, or by coastal vessels.

So much for the present—what of the future? The views of both of the territorial governments were expressed in briefs presented to the Royal Commission on Canada's Economic Prospects by Mr. R. G. Robertson, Commissioner of the Northwest Territories, and Mr. F. H. Collins, Commissioner of the Yukon Territory. Each of these briefs emphasized that high transportation costs and lack of adequate facilities are the main obstacles to mineral development, and that mineral development is the key to economic expansion in both territories.

The Commissioner of the Yukon urged that the federal government should undertake the cost of constructing "resource development" roads and should build them into promising regions where substantial exploration is taking place. His brief contained a map indicating the transportation facilities which may well become desirable in fifteen to twenty-five years. It included roads servicing the promising area east of the Whitehorse-Mayo road and north of the Alaska highway, a possible road from the Klondike up to Eagle Plain where there are prospects of oil discoveries, a road north from Keno Hill up the Wind River, and others. The brief also suggested that at some time it may become desirable to extend the railway from Whitehorse to Carmacks.

The Commissioner of the Northwest Territories proposed three methods of improving transportation facilities. They were: a railway to Great Slave Lake, the construction of development roads into promising areas, and the servicing of defence installations in the Arctic by commercial air routes acting as common carriers.

Mr. Robertson pointed out that construction of the proposed railway would move the rail-

head some 400 miles further north. It would substantially reduce transportation costs to all points in the Mackenzie District, and particularly to the present and prospective mining areas. It would also provide a transportation system capable of handling a large mining development—which the present system is not. He said that the effect of all this on the development of the entire Mackenzie District would be electrifying. The accuracy of this statement has been vividly demonstrated by recent events. During the past twelve months or so there has been a wave of mineral exploration activity in the Great Slave Lake area. One group of companies has staked over 2,000 claims in a lead-zinc prospect on the northwest shore of Great Slave Lake. Another company has staked about 900 claims close to the Pine Point property of the Consolidated Mining and Smelting Company. Other substantial blocks of claims have been staked in copper prospects in localities ranging from the south shore of the East Arm of Great Slave Lake up to the Dismal Lakes and the Arctic coast. Conversations with officials concerned with these various projects indicate that they have all been sparked by the belief, arising out of discussions in the press, that a railway will before long be built to Great Slave Lake.

Obviously, however, it is necessary to weigh the benefits of such a railway against its cost. If the line were to be built from Grimshaw to the south shore of Great Slave Lake in the vicinity of Pine Point, it would probably cost between \$50,000,000 and \$55,000,000. There is at Pine Point a zinc-lead deposit owned by the Consolidated Mining and Smelting Company of Canada which may prove to be one of the largest zinc-lead mines on the North American Continent. If a railway were built, Consolidated Mining and Smelting have indicated that they would bring a mine into production at an initial rate of about 560 tons of concentrates a day. This would provide substantially less traffic than would be necessary to make the line a paying proposition but it would be a most fortunate "base load", so to speak.

It seems likely that, if the railway is to be built, the government would have to carry, initially at least, a substantial part of the



Unloading lumber and prefabricated buildings for the new townsite of Aklavik in September 1954.



The portage of a tugboat through Fort Fitzgerald, Alberta, for use in the Northwest Territories.

Unloading freight at Yellowknife on the distant shores of Great Slave Lake.





A tractor train in the north. This "cat train" crossing Great Slave Lake is en route from Hay River to Yellowknife. A bunk-house is part of the freight.

capital cost, if not the whole of it. The project, however, would produce immediate revenue for the government, for the increase in income tax and mining royalties paid by Consolidated Mining and Smelting as a result of production at Pine Point would be considerably greater than the annual cost of amortizing the railway. In addition, there would of course be substantial indirect tax revenue resulting from the ramifications of a railway to Great Slave Lake and a mine at Pine Point. Furthermore, if the exploration now envisaged, together with further exploration which would almost certainly follow the decision to build a railway, leads to the establishment of three or four producing mines,

there might well be sufficient traffic for the railway to repay the entire capital cost to the government.

It is true that if the government did not spend \$50,000,000 for this railway, an investment of a comparable amount would—in times of full employment—probably be made by some private business in some other part of the country. As a result of this there would be a roughly similar increase in tax revenue without any government expenditure. However, the significance of the tax revenue that would come from a railway to Great Slave Lake is that the government could apparently construct a line that would have the immense



These aircraft at Snare River, Northwest Territories, are typical of the pontoon-equipped bush aeroplanes that fly over the regions of the north and are the lifeline between the prospector and the supply depots.



Looking north-west along the Alaska Highway about eighty-five miles from Whitehorse, Yukon Territory, and ten miles south of Haines Junction.

National Film Board

benefit of opening up a large part of northern Canada, without incurring the net cost to the Treasury that is usually involved in the early stages of a pioneer development. Mr. Robertson concluded his comments on the need for a railway to Great Slave Lake by suggesting that the Royal Commission should consider whether this is not a case where the nation should undertake the task in order to ensure a greater national development in the future.

On the subject of development roads, the Northwest Territories brief, like the Yukon brief, contained a map showing routes which may conceivably be desirable by 1970 or 1980. These include one from the Mackenzie high-

way around the west and north arms of Great Slave Lake to Yellowknife, with a branch into the Marian River region and perhaps on to Coppermine. There are also proposed roads going along both the north and south sides of the East Arm of Great Slave Lake, and a number of others.

Referring to the desirability of the air supply of defence establishments in the Arctic being undertaken by common carriers, Mr. Robertson pointed out that this would greatly facilitate the administration, mineral exploration and general development of the northern part of the Northwest Territories. It would do much to open up the Arctic.

Canadian Pacific Airlines' Curtiss Commando loading cargo at Norman Wells, for Distant Early Warning Line sites on the Arctic coast.

Canadian Pacific Railway

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Fish from the commercial fisheries of the Northwest Territories on Great Slave Lake are loaded at Gros Cap for air shipment south. The bulk of the catch is transported by truck along the Mackenzie Highway which runs from Hay River to Grimshaw, Alberta.

Granted that all this is true, however, and that the provision of better transportation facilities would do much to stimulate mineral development, someone may ask—what is the urgency? Why should the government help to build transportation systems now? Why not wait until the need for the resources has grown sufficiently acute that private enterprise will be willing to build the transportation?

There are several reasons. First and foremost, if we believe the report of the Paley Commission and similar studies, there is little doubt that the world demand for minerals will increase substantially in the next ten or fifteen years. Neither does there seem much doubt that Canada will be called upon to supply a large part of this demand. If we are to be in a position to do this, we must encourage exploration of our mineralized areas now because between five and ten years often elapse between the discovery of a promising mineral prospect and the time when a mine comes into full production. And the crucial point in the whole

argument is that the provision of adequate transportation facilities is as necessary to stimulate exploration in a remote area as it is to stimulate production. Few companies will spend the substantial sums of money needed for effective mineral exploration if there is little assurance that transportation will be available to handle the production of any mine which they may discover. The Mackenzie District is a good example of this. Up to the present mineral exploration has been much less intensive there than in the more accessible parts of Canada. Yet, now that the mining community has apparently started to believe that a railway may be built to Great Slave Lake, a surge of exploration has immediately resulted.

That is all fine, the skeptic may say, but why encourage exploration and development in the Yukon and the Northwest Territories when large parts of the provinces are still relatively unexplored and undeveloped? There would be some validity in this argument if we had any assurance that the Canadian Shield and the

THE DEVELOPMENT OF TRANSPORTATION IN THE CANADIAN NORTH

Cordilleras are relatively evenly mineralized throughout their length and breadth. Unfortunately we have not this assurance. We have little or no idea precisely where we will find the large high-grade deposits of easily treated ores we shall need. The fact that Pine Point, given a railroad, may be one of the lowest-cost producers of zinc and lead in the world bears out the point that we may have to look to the north for our best mineral finds.

Another reason for the urgent need for northern development is the economic plight of the trapping population, a large proportion of which are Indians and Eskimos. The fur trade is in a decline which may be of long duration. The real income derived from fur-trapping in the Northwest Territories is considerably below the pre-war level and the number of people drawing on this income is substantially increased. In general, it is not possible for a person to live and to provide for the minimum needs of his family without the aid of relief payments. Continued payment of relief is seriously demoralizing to the character of the people. Hence it is most important that alternative means of income and employment be found for a considerable number of those now engaged in trapping—and be found quickly. This inevitably means economic expansion, because the present economy of the north can-

not provide alternatives for any substantial number. Economic development of the Canadian north, highly desirable for its own sake, therefore becomes doubly important as a means of assisting those who belong to the region and whose economic and social future is in peril.

In conclusion, one further thought. People sometimes seem to forget that Canada is a great deal more than a narrow populated strip extending 200 or 300 miles north of the United States border, and is almost as vast from south to north as from east to west. This is not very surprising, because for the first seven or eight decades of our national existence we were fully occupied with uniting the country, politically and economically, from Atlantic to Pacific. Now, however, we have reached the point in our development where we can, and where we should, look northward. The Commissioner of the Northwest Territories expressed this view when he closed his submission to the Royal Commission on Canada's Economic Prospects. "As we in Canada", he said, "develop our northern areas and bind them, by our daily comings and goings, into the more settled areas of the south, I submit that we shall not only be insuring the realization of new wealth in a not very distant tomorrow. We shall also be writing the second of the major chapters in our development as a nation."

Railway yards at Waterways, Alberta. This is the terminus of the rail line for the north. From here tugs and barges take over for the 1,800 miles of the Mackenzie water route to the Arctic Ocean.





Almost completely hidden behind a bushy screen near Waverley in the Taranaki Province of New Zealand's North Island is a limestone cave containing cryptic primitive carvings. Three adventurous boys hunting in the bush over fifty years ago discovered it, but it is still not known whether the carvings were done by the Maoris or by an earlier people, the Moriori.

The Primitive Rock Carvings of Waverley, New Zealand

New Zealand Government photographs

A MYSTERY to layman and scientist, Maori and European alike, the primitive paintings and rock carvings found in certain parts of New Zealand are of world-wide ethnological interest. They are known to be many hundreds of years old, but neither their origin nor in most cases their significance has yet been traced. It is probable that they are the work of very early Maori settlers, but though tribal lore goes back for centuries modern Maoris can throw no light upon this earliest known form of Polynesian art. Some people believe that they date back to the days before the arrival of the Maori, when a race named the Morioris, of whom little is known today, inhabited New Zealand.

This rock art is found in shallow caves, possibly once used by native hunters. There are hundreds of examples, mostly in the South Island. Some are in the form of intricate designs carved in the stone; however, the use of stone as a medium of expression by the Maori is unusual. Their artistic wood carvings are better known. Typical of the rock carving is that in a limestone cave in the Waverley district of the Province of Taranaki. Samples of it are shown in the accompanying photographs. It is possible only to speculate about the origins and meanings of these carvings. Some of the figures appear to be birdmen, or *Manaia*, a characteristic feature of Maori art. A lizard shape, a dumb-bell shape, and a fan shape can also be discerned.



Ethnologists study and puzzle over the mysterious designs carved on the wall of the cave. The oblong cuts (top, left) are probably modern, but the spirals (centre) are typical of Maori art. On the extreme left is a lizard. The raised markings (top, centre) may represent a Maori birdman or Manaia. The latter is said to correspond roughly with the gargoyle in European art.

A close-up of one section of the carving on the wall of the cave. In the top left hand corner is part of the lizard with an object shaped like a dumbbell to the right of its tail. Some scientists believe that the serrated lines near the bottom of the photograph may represent a Taniwha, a spirit in Maori mythology. But mystery shrouds the intention of the artists.





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EDITOR'S NOTE-BOOK

Dr. Albert G. Ballert (*The 1950 Versus the Suez*), whose home is in Livonia, Michigan, recently became Director of Research for the Great Lakes Commission, an interstate agency with a membership of six states at present. Prior to receiving this appointment, he made studies of metropolitan market areas, took part in city planning for Chicago, assisted in state economic development, and taught at U.C.L.A. and the University of Chicago. He received his doctorate in geography from the University of Chicago in 1947.

* * *

John S. Peach (*Calgary — the Foot-hills City*) was employed as producer, writer, and announcer for radio broadcasting services in Canada and England from 1930 to 1951. In 1952 he entered the field of trade association public relations. Last year he was appointed Director of Public Relations for the Canadian Petroleum Association in Calgary.

* * *

Mary Wellesley (*At A Certain Village in La Mancha*) lives in London, England. Fond of travel, she has visited various European countries besides Spain, the subject of her article in this issue. She is a freelance writer and photographer.

* * *

C. H. Herbert (*The Development of Transportation in the Canadian North*) deals with a subject close to heart, for he is Chief of the Economic Division of the Department of Northern Affairs and National Resources at Ottawa. The article is based upon an address Mr. Herbert delivered at the annual convention of the Association of American Geographers in Montreal in April of this year.

ERRATA

Vol. LIII, No. 4, pp. 156-7: caption for photograph at bottom, centre: "Carmacks" should read "Johnson's Crossing"; pp. 158, caption: "on the Teslin River" should read "on Teslin Lake".



THE TRAVEL CORNER

A Voyage on the Empress of Britain

It is not often that one crosses the Atlantic on a luxurious new ocean liner and it is not every person who knows how to enjoy such a voyage to the full. But those with the prerequisite sea-legs and capacity for enjoyment agree that the experience is memorable. Our staff librarian, Sylvia Seeley, is no exception. This summer she sailed from Montreal to Liverpool in the Canadian Pacific's new flagship, Empress of Britain. For the edification and amusement of prospective passengers, incurable landlubbers and armchair travellers, we present here some of her notes on the crossing:

"We broke a record! Oh dear no, not I; I had nothing to do with it, unless perhaps as the smallest of the grown-up passengers on board, I was a sort of mascot, but the fact stands to the honour of Captain S. W. Keay, O.B.E., that the *Empress of Britain* crossed the 2,437 miles that separate Father Point, Quebec from the Bar Light, Liverpool in four days, twenty hours and thirty minutes, a post-war record, even if her earlier namesake did better than that in pre-war days.

"It was noon as I rushed up on deck to see the last ties of coloured paper ribbon which bound us to the shores of Canada breaking amid the cheers and shouts of *bon voyage* from the dockside. Three stout little tugs hooted and puffed into action. I watched the tiny *Graham Stewart* belching volumes of black smoke as she strained at a cable which looked no thicker than a bit of string at the grocery store, but which nonetheless served to pull the aristocratic nose of the *Empress* clear of the dock. With efforts fit to burst their boilers, two other tugs pulled and pushed at the stern till the *Empress* backed out of the dock, and with apparently one inch of safety margin she cleared the low sandy bank behind her, swung round, and proceeded on her stately way down the St. Lawrence, the Victoria Bridge astern, the Jacques Cartier Bridge ahead. She moved somewhat like a modern elevator. Unless you could see some outside object, you did not know that you were moving at all. If you were inside, it was only the portholes which

told you that you were not in the Ritz-Carlton or the Chateau Frontenac.

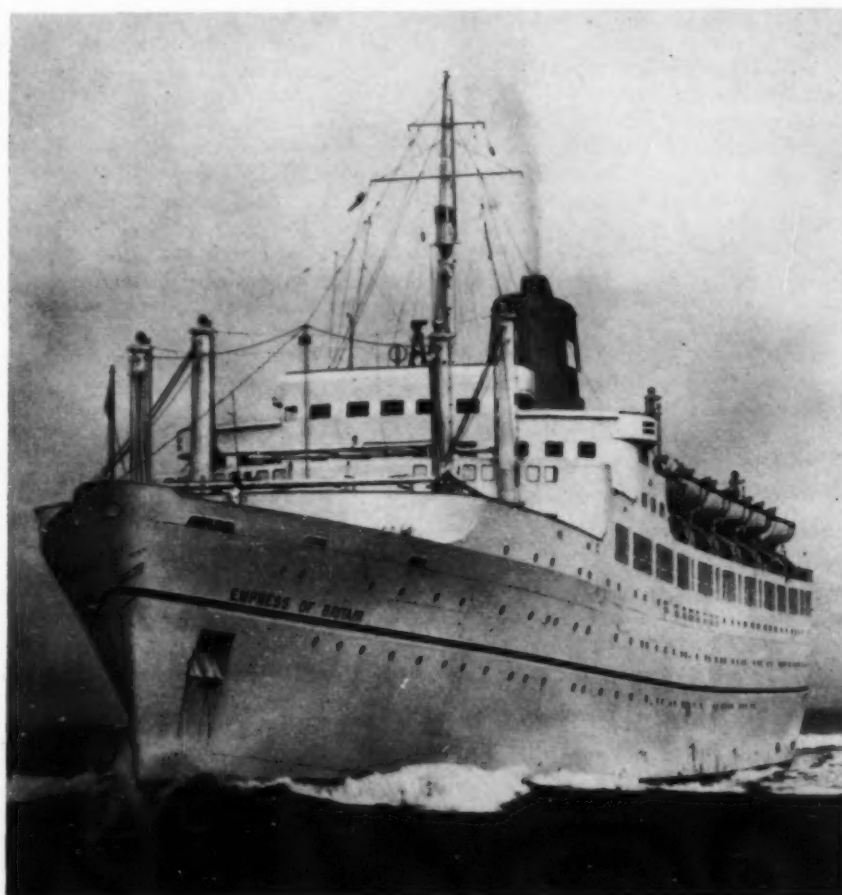
"As our course opened out towards Quebec, we kept to the southern shore while cargo vessels and tankers passed to the north of us, making for Montreal. Despite the lure of a specially musical dinner gong, most of us lingered on deck to see the outline of the historic citadel, standing boldly against the evening sky and the fine silhouette of the Chateau Frontenac. We passed Wolfe's Cove without putting in, but came to a full stop to change pilots. As the *Empress* glided on again, the shores appeared to recede though we kept to the Gaspé side and had a distant glimpse of Point des Monts to the north. As the interest of the shoreline faded, we turned our attention to our more immediate surroundings and explored the ship with her abundant amenities.

"Numerically speaking, the *Empress* is more interested in her tourist trade than in first class. She is

built to carry 896 tourists, but only 150 passengers in first class, and this fact governs the allotted deck space and the size of the public rooms. The Empress Room, a magnificent ballroom amidships, is open to all passengers for dancing, games and entertainments of all kinds. It has a raised dais, fringed with flowering plants, and at the back hangs a portrait of the Queen, wearing the Garter ribbon which stands out with singular impressiveness over her white court robes, as one views the picture from afar, perhaps after leaving the movie theatre, which also is open to both classes and runs three performances a day. The decoration of the walls and the comfort of the seats in this sea-going theatre are a vast improvement on many of its counterparts ashore.

"We approached the long low line of Anticosti and took the northern route, which is shorter. The channel here narrowed considerably; snow lay on the Quebec hill-tops and the air was keen as the blade of a knife. As we left Anticosti behind, the gulf opened out and all land disappeared for a time though we were still in sheltered waters.

"It was at this point that I received an invitation from the Staff-Commander to visit the bridge. As I followed him up and up, and then up



The Empress of Britain, new flagship of the Canadian Pacific Steamships line.
C.P.R.

again, I wondered if there would be anything in that lofty and compact heart of the vessel that might come within the compass of my understanding. To start with, the bridge does not look like a bridge at all, but like a very important office, reminding me rather of the chronometer room at Greenwich Observatory, all full of twinkling brass gadgets and knobs. In the centre stands a seaman at the wheel, intently silent at his task, which is perhaps one of the few remaining ties with the old days of sail. Yet even he, now, can be superseded by machinery. As he stands at seventy-two feet above sea level, he can look out over nine or ten miles of smooth water on a calm bright summer day. In winter clear vision can be preserved by means of circular panels on the glass in front which revolve at the press of a button and keep the frost from forming better than any wind-screen wiper.

"The array of modern devices for the safety of the ship is bewildering. That greatest of safeguards, radar, has all the attraction of a toy when you look in and see precisely where you are in relation to your surroundings and to any ship or other object that may happen to be in the neighbourhood. The echo depth finding device is equally enthralling, and a skilful device made to scale with movable blocks, showing exactly how the weight of the cargo is distributed, along with diminishing factors such as fresh water supplies, stores and fuel. Water alone is used at the rate of about 200 tons a day, which should do something towards lifting the vessel out of the water at the end of each voyage. And it is somebody's business to keep this balance of weight perfectly true night and day. I asked if the passengers made any difference and was told that the 1,500 souls aboard might sink the ship one inch deeper in the water.

"Then the fire detection apparatus is so marvellous that one almost expects to see a little spurt of smoke popping out of its appropriate funnel to announce that it is unnecessarily warm in such and such a hold. The speed with which contact can be made with a danger area is amazing. The captain is in command of the situation at once and, if he deems it necessary, every corner of the ship will instantly get a cold shower from the sprinkler system, contrived and controlled with minute care. Nothing is left to chance, and most electric devices have a hand-worked duplicate, ready to come into action should any part of the elaborate mechanism fail. I left the bridge feeling that life at sea was much safer than life on land.

"I was conducted next day to the engine room, fifteen feet below the surface. In the days when we learnt Latin, one of the favourite tags was *facile est descensus Averni*. But this descent was not facile at all. The ladders were nearly vertical, the heat overpowering and the noise annihilating. But the sight of those two twenty-four-inch propeller-shafts doing 120 revolutions a minute filled me with reverence for the minds who create such things. My guide took me into the stern where the shafts emerge to turn the two great propellers of manganese bronze, each with the strength of sixteen tons weight to churn up the dark waters into the driving force of 30,000 horse-power. I was also shown the Denny Brown stabilizers, which can be projected about twelve feet on either side to counteract the ship's rolling, a vast convenience for passengers.

"It was hot in the neighbourhood of the furnaces, whose interior temperature is about 900 degrees. It takes about 140 tons of oil a day to satisfy their fierce appetites. Against the roar of the machinery, I was told many things about compressed steam, but the noise compressed my brains towards the irreducible minimum, and I was glad to emerge once more on deck where the silence was uncanny until my ears attuned themselves to the purr of the sea and the air-conditioning.

"The Belle Isle Light looked very chilly and desolate in the cold crystal-clear air, and all too soon we were through the Strait and out into the open Atlantic, with Newfoundland's long fingers of rock stretched out in waving farewell from the New World. I tried playing deck tennis, but though my partner and I were deft enough at catching the quoit we constantly dropped it from our numb fingers, and I was thankful when the Purser kindly said he would hand me over to the Head Steward who was to conduct me round the kitchens. The rendezvous was in the main restaurant, an attractive room extending the whole width of the ship, and decorated with frescoes of Canadian bird life.

"In the kitchens a pleasant vista of stainless steel met my eyes. Gone are the days of cooks' galleys below, the wooden floors, the scrubbing, the smells of cooking or of waste bits. All cooking is done by electricity, except the choicest steaks which are prepared on an open charcoal grill; all washing up is done electrically. The used crockery is put into a kind of steam tunnel, through which it is automatically carried and emerges ready for the next meal, clean, sterilized and dried.

"Next I descended into the nether regions where each kind of food is stored in the temperature that suits it best. A winter's blast met me as a heavy sliding door revealed the home of milk and eggs, at one degree above freezing. In another very large compartment most of the fruit (except bananas) resided at a temperature of 42°F. The cheese was next door at 44°F, and the groceries in general were at slightly more genial temperatures. Huge bunches of bananas hung around, ripening at their leisure, and special luxuries for connoisseurs also had their place. And below decks again were stored the ice and meat and fish. Figures are confusing to the lay mind, and when I was told that 1,953 dozens of eggs were required for one complete journey (across the Atlantic and back), I felt that it was time I got back to the bakery where 120 loaves a day seemed to me a very small number, but that is just plain bread, irrespective of all the delicious rolls, scones, cookies, pastries and daintily iced goodies which the Head Confectioner creates.

"To the 'live-aloner' some of the food figures sound rather stupendous. There is equipment to produce 6,044 meals a day, besides pantries on four decks to handle the eternal round of soup, coffee, snacks and sandwiches that goes on round the clock. Each kind of food is prepared for table by specialists working in separate rooms with a wide counter which gives onto the main alley, where the stewards collect it and carry it to the restaurants. Salads, meat and cheese are all handled by cunning masters of their crafts. And there is a butter machine which turns out neat round pats at the rate of a Gestetner duplicator.

"How empty the enormous ocean looked from the snug safety of our ship, I mused. At that moment the loud-speaker made an announcement which drew all eyes towards the port bow. There we saw a craft, possibly of 200 tons, with a sail, heaving surprisingly for such a calm sea. A sail in mid-Atlantic was a romance that I had dreamed of but never yet seen. What was she doing and what nationality could she be? We bent our course as close as possible to exchange greetings with that lonely little cockle-shell seeking to make a living off (and a long way off) the Grand Banks of Newfoundland. Although she had an auxiliary motor, from the safety of our 26,000-ton ship it looked a risky business so far from land. The fishermen waved and shouted to us. I learned that they were Portuguese and that their ship belonged to the fleet whose arrival once a year at St. John's, Newfoundland, is such a colourful event.

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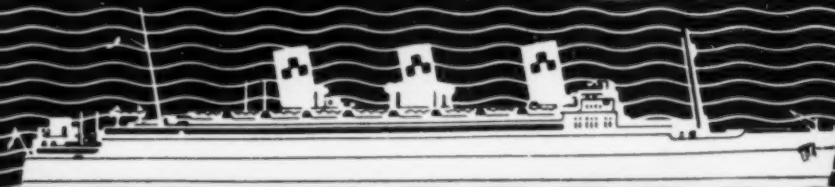
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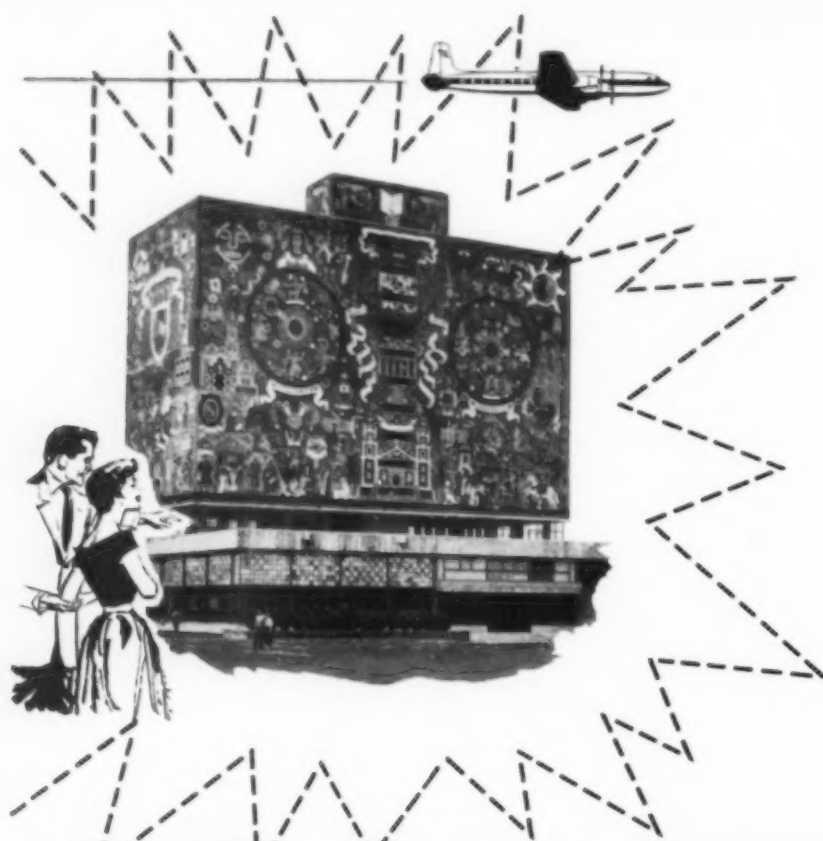
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"The next excitement was to guess how soon we should see the coast of Ireland; but with our perfect weather and tail wind, we sighted it while still guessing. However, there was still much to fill in the remaining time of the voyage: the swimming pool; the gala night with its coloured balloons and dancing; the cocktail parties given by Mr. N. R. Crump, President of the Canadian Pacific Railway, and by the Purser for those who had been sitting at his table; and the companionship of the new friends we had made.

"Soon the Purser's office was like a swarm of bees, as passengers changed their money and struggled to understand unfamiliar currencies. Then there were labels and railway tickets to be thought of, and declaration forms to be filled in as we slid along between Ireland and Scotland to make our record time at the Bar Light.

"Truly Canadian Pacific Steamships has come a long way since it first chartered the 800-ton barque, *W. B. Flint*, to bring tea and silk across the Pacific from Yokohama to Vancouver and so provide prospective freight for the infant railway. She arrived at Port Moody only three weeks after the first train had crossed the continent in July, 1886. Five years later the first *Empress*, the *Empress of India*, ran her trials, carrying the now familiar red and white chequered house-flag designed by the president of the company, Sir William Van Horne. The *Empress of Japan* and the *Empress of China* soon followed, and were the first twin-screw vessels on the Pacific route.

"The first *Emperesses* on the Atlantic route were the *Empress of Britain I* and the *Empress of Ireland*, which made their maiden voyages in 1906. By the outbreak of the 1914 war the Canadian Pacific fleet numbered twelve passenger and seven cargo liners. They did their share as gallantly as did the larger fleet in the Second World War, when the greatest loss was the *Empress of Britain II*, sunk by enemy action in 1940.

"Amongst the tributes paid to the latter was one by Leslie Howard, the actor, himself so soon after to fall victim to enemy action. Speaking on the B.B.C., he said: 'She will not be forgotten. Indeed, it is safe to guess that one day she will live again, for surely Canada will recreate for her a daughter, in her own name and something like her own image, a daughter perhaps even more beautiful than the mother.' Sixteen years later this prophecy met with its perfect fulfilment in the *Empress of Britain III*."

AMONGST THE NEW BOOKS

Western Europe

By E. D. Laborde

(University of London Press Limited)

To attempt to compress a regional geography of such a diversified area as Western Europe into 278 pages is a feat which few geographers would dare to attempt. While Dr. Laborde's book has many of the defects inherent in such an attempt, it does provide a convenient, well-written, and — most important — up-to-date introduction to the study of Western Europe.

A general survey occupies fifty-eight pages, and there are chapters on France, the Iberian Peninsula, Italy, Switzerland, Germany, the Benelux countries, and Scandinavia and Denmark. There is a section on Iceland, but nothing on Finland, surely to be considered part of Scandinavia. The plan adopted in most chapters is to discuss the country systematically, then divide it into natural regions. There are then sections on trade, natural products, industry and communications.

The best chapters are on France and Switzerland. Well written, lucid, and up-to-date, they provide a first-class introduction to the study of these countries. The chapter on France, with its reference to the provincial literature, and the description of the settlement pattern from a geographical viewpoint, conveys an exceptionally clear idea of the landscape. The treatment of the Benelux countries in one chapter, although more stress could be placed on their economic interrelation, is a sound idea. The chapter on Scandinavia and Denmark, occupying only twenty-two pages, is sketchy and weak.

Where the writer can expand and does not have to compress a large amount of material into a short space, he writes lucidly and interestingly. His reference to the junction of the Rhone with the Saône as the yoking of a wild bull with a timid sheep, the quotation of a nutshell description of the climate of Madrid: "the air in Madrid is so subtle that it can kill a man, but not put out a candle," and other picturesque phrases enliven the pages and make for easy reading.

One of the strongest points of the book is its description of post-war changes in Western Europe. New oil discoveries in Germany are mapped, the amount of reconstruction is stressed, and the changing trade pattern both within the area and outside it is emphasized.

The main weakness of the book occurs in its first chapter, where we find the old deterministic statements

"the Mediterranean tends to isolate its inhabitants from the ocean," "Protestantism is the expression of the cold and misty north, Roman Catholicism of the warm, bright south" and "The causes of these struggles (the wars in Europe) were partly political, religious or dynastic, but they were mainly geographical." This determinism leads to some strange statements, totally out of place in a geographical text book. Page 37 has a discussion of the European political scene, based on geography, which is irrelevant and misleading; on page 47 there is a paragraph on dress fashions and manners.

Another serious defect in a text book designed for use by University students is the complete absence of references and of a bibliography.

There are numerous good maps, well keyed to the text. Some of these tend to be oversimplified, and map 13, in line with the deterministic philosophy of the first chapter, plots "Southern and Eastern Limits of Stable Constitutional Government," with France on one side of the line and Italy on the other. The photographs are clear, well produced — but mostly irrelevant, as they show picture-postcard views of major European cities.

Dr. Laborde has written a useful book, however, and one that will provide any reader interested in Western Europe with a sound, modern, factual basis for study.

JAMES R. LOTZ

* * *

Stonehenge

by R. J. C. Atkinson

(Hamish Hamilton, Toronto, \$3.75)

As Camden, the Elizabethan antiquarian described it, the remarkable prehistoric structure on Salisbury Plain consists of "certaine mighty and unwrought stones, . . . upon the heads of which, others like ouerthwart peeces do beare and rest crosswise, . . . so as the whole frame seemeth to hang: whereof we call it Stonehenge". (He was mistaken, though, about "unwrought".) The diarist Kilvert said the huge stones gave him the impression of petrified giants, and in the circle itself he instinctively took off his hat, for it was "like entering a great Cathedral Church". It has puzzled and stirred the imagination of a hundred generations of Britons.

Stonehenge, like the temple of Angkor Wat and the tufa heads of Easter Island, has an intrinsic majesty made awesome by ignorance. Like them, it is a monument to a vanished culture, and among them, it is by far the oldest and considerably

(Continued on next page)

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The Society takes pleasure in announcing that reprint booklets of Dr. J. W. Watson's article **The Land of Canada,** published in the April 1956 issue of the Journal, are now available.

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(Continued from previous page)

the most mysterious. But unlike the others, Stonehenge is in the midst of Western civilization, and so has been able to acquire a rich patina of legend and speculation. It has been associated with Hengist, with Atlantis, with Boudicca, with Merlin, and, pre-eminently, with the Druids. This last flight of fancy was started by John Aubrey and has enjoyed wide popularity, despite the fact that no responsible modern historian or archaeologist has countenanced it for one minute.

Gradually, the archaeologists have been probing deeper into the mystery. The most recent diggings were begun in 1950 by Stuart Piggott, J. F. S. Stone, and the author of the present book. They are still unfinished, but a respite from field work has given opportunity for this account of the current state of knowledge. It is a clear and engaging account, too, in which fact and possibility and conjecture are nicely balanced but nowhere confused. It has long been known that the stones themselves were transported from many miles away, and Mr. Atkinson here gives us some idea of the magnitude of the operation. The sarsen blocks, for instance (the biggest weighs fifty tons), were dragged twenty-four miles across country, a

Herculean job that can hardly have absorbed less than 8,000 man-years (assuming a labour corps of 1,500 men). And this is aside from the dressing and the placement of the blocks. Sarsen is harder than granite and the shaping and dressing alone must have taken at least 200 man-years with the available primitive means.

Surprisingly, one of the most curious and significant details of Stonehenge has only just come to light: there are ancient carvings of daggers and axe-heads (one was discovered by a ten-year-old schoolboy) on some of the monoliths. The shapes of these pose interesting conundrums about the cultural affiliation of the builders, and Mr. Atkinson is persuaded that there is a Mycenaean link some-

where. It must be admitted, however, that there are still far more unknowns than knowns when it comes to the larger questions of origins and purpose. Not the least difficult problem is the length of time covered by the active period of the edifice. The "original" Stonehenge, built not later than 1700 B.C., could have been no more than a hazy folk-memory to the men who tackled the sarsen circle of "Stonehenge III" around 1500 B.C. When Caesar came to England the place may well have been derelict for 1,000 years. Yet there is evidence of a deliberate partial destruction early in the Christian era, although no one can suggest any plausible explanation for what in itself must have been a formidable undertaking.

The illustrations are good. The site and the stones are covered by twenty-six pages of photographs. Among the several line-drawings are some interesting sketches of the presumptive building techniques. Altogether, this is a book that should please any reader who is not a latter-day Druidiot — if there are any such in Canada.

N. T. GRIDGEMAN

* * *

The Masai Story

by Oskar Koenig

(Michael Joseph, Toronto. \$3.75)

This book presents to the reader the story of a little-known part of Africa in an exceptionally pleasing light. Mr. Koenig has proved before how well he knows his subject, and we may therefore accept with confidence the picture that he draws of the proud and noble Masai people, who, even in this day and age maintain all that is finest in their native life. It seems hardly fair to say that they are uncontaminated by the white man, though centuries and generations have shown us the unhappy propensity which the black man has for absorbing all that is worst among the white traders and explorers, and which Mr. Koenig describes as "the cheap blight of civilization". How-



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ever, the Masai have accepted, very cautiously, the establishment of some schools.

If the social customs of the Masai are primitive to the most elemental point, their moral stamina as evidenced by their loyalty, endurance and happy though fatalistic view of life, gives proof of the soundness of their theories. They obey strictly their own stern code of training which produces hardy and healthy warriors. Yet they hold themselves aloof from their neighbours, whom they despise, and are chiefly renowned as magnificent and successful hunters. It is remarkably appropriate that their most important enemy should be the lions who share their land. Mr. Koenig's word-picture of the dead warrior slain by a lion is quite outstanding in its significance.

Although the author has made a successful living as a white hunter, he shows us how he has grown through this stage to the higher evaluation of the living animal over the dead one. His transition and the reasons for it are most vividly illustrated in one brief passage found between pages 79 to 81. There are, of course, also far deeper and more fundamental causes at work, deeply embedded in the whole impact of white civilization throughout Africa, but the situation

is safeguarded by men who can confess with Mr. Koenig, "It is a horrible thing to have a wounded animal on your conscience, not even knowing where your bullet may have landed." This is not sentimental pity, but a question of conscience in a man's pursuance of his livelihood. Mr. Koenig views the country where he works from every angle, and despite the pleasing modesty of his style, his sense of duty and responsibility towards the land, its people and its animals show an admirable level of practical idealism.

SYLVIA SEELEY

* * *

The Northern Continents

by T. Herdman and A. Hurworth
(Longmans, Green & Co.,
Toronto. \$1.25)

This small book, four inches by six inches in size, has the ambitious title of *The Northern Continents*, which means North America and Asia. Book I in the series covers the Southern Continents, and Book III deals with Europe. They are part of a world geography series aimed at junior high school level; the pagination is continuous, this volume extending from page 198 to page 420. The book is well illustrated with excellent pic-

tures which have lengthy, informative captions, and it has numerous simple maps and sketches. In the small amount of text space remaining the problem has been the proper and wise selection of information. For North America the choice has been good, and the authors give a brief, accurate characterization of the physical geography and economy of each of eight regions of the continent. Since it was written for British schools, the book has the disadvantage of making English comparisons, but at least is more accurate concerning Canada than are most American books.

Although it seems inevitable that errors and misconceptions about Canada will appear in foreign texts (and even Canadian ones), this reviewer has been carrying on a personal campaign to reduce them, and appeals for more careful checking of Canadian sources and checking by Canadian geographers. (See *Canadian Geographical Journal*, February 1955 — *Textbooks on the Geography of Canada*). Two of the few misconceptions noted in this book are that "many of the young people of eastern Canada migrate to the prairies", and that "Eskimos remain shut up in their igloos during the winter and dare not go out in the darkness." Minor errors in-

(Continued on next page)

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clude interchanging Lakes Erie and Ontario (pages 248 and 250), stating that there is "considerable" mineral wealth in the Canadian tundra, trees in the northern forest may be 200 feet high, navigation is closed for five months in the St. Lawrence, Prince Edward Island is particularly important for fur-farming, Quebec farms produce mainly cheese rather than fresh milk, and iron ore is moved to Pittsburg by canal. J. L. ROBINSON

* * *

The Singing Wilderness

by Sigurd Olson

(McClelland & Stewart, Toronto, \$4.50)

This volume is a collection of fascinating essays on the author's experiences and impressions, covering more than thirty years of living in the wilderness lake country northwest of Lake Superior. Nothing seems to have escaped his notice or failed to excite his interest. His subject-matter ranges from the intense silence of a remote lake to the relentless violence of a winter storm, from the magic of a forest pool to the charm of a band of chickadees. Although the Quetico-Superior country is the locale of these observations, they could apply equally well to any section of our northern

forests. Each reader will find passages that will recall personal experiences of some wilderness area much like those Mr. Olson describes. The reader could only wish that it were possible to put on paper his own feelings and experience in such stirring prose.

To have dealt with so vast a subject in such intimate detail and with such feeling, it is obvious that the author is no casual observer who reached his conclusions hastily. One gets the feeling, rather, that he is not so much an outside observer viewing the world around him, as an integral part of the country he describes. Only when an author feels himself a part of the environment that he sets out to write about, can he attain the conviction and sympathy that is needed to sustain the interest of his reader. Yet the author never stoops to mawkish sentimentality. We can understand his dismay at finding a once flourishing forest grove, which he had grown to know and love, reduced to a rubble of stumps and brush. We can understand his concern for the fate of a lone mallard fighting valiantly against the rigours of approaching winter. His interest in the comings and goings of the hares and squirrels, the loons and the chickadees are those of the true naturalist who looks upon them as personal friends.

The theme of all the essays is essentially that the greatest allure of the wilderness is its solitude. This is distilled in one of the most moving passages in the book: "How often we speak of the great silences of the wilderness and of the importance of preserving them and the wonder and peace to be found there! When I think of them, I see the lakes and rivers of the north, the muskegs and the expanses of tundra, the barren lands beyond all roads. I see the mountain ranges of the west and the high, rolling ridges of the Appalachians. I picture the deserts of the southwest and their brilliant panoramas of color, the impenetrable swamplands of the south. They will always be there and their beauty may not change, but should their silences be broken, they will never be the same."

The character of the wilderness, its rugged primitiveness, its harshness, its melancholy beauty has been strikingly captured by Francis Lee Jaques in the thirty-eight black-and-white drawings that illustrate the book.

The Singing Wilderness should be the fireside companion of every lover of the out-of-doors, something to which he can turn when the tensions of urban living have all but erased memories of the unspoiled wilderness.

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